ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCIX, No. 19 — PAPER — Thursday, November 8, 1934

Abitibi Paper Co. Acquires George H. Mead Co.

Report of the Abitibi Receivers Discloses the Transaction, Which It is Said, Involved $750,000 —The Purchase, It is Surmised, Was Influenced by the Abitibi Company's Desire for a Closer Contact with Newspaper Publishers—The Mead Company Was Organized About 20 Years Ago by George H. Mead

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, November 5, 1934—An item in the report of the receivers of the Abitibi Power and Paper Company reveals a transaction of considerable importance.

The deal in question is the purchase of the George H. Mead Co. with headquarters here by the Abitibi company for $750,000. The Mead company was the distributing agency for the Abitibi. It disposed of its entire white print tonnage on a commission basis.

The Mead company was organized by Mr. George H. Mead about 20 years ago. It developed a very efficient organization which covered the United States as far west as Omaha. For many years it has handled the white paper demands of many of the leading daily publications in the country. It has no connection with the Mead Paper Company of Chillicothe. That concern manufactures book and magazine paper exclusively, serving, among others, the Crowell Publishing Company which produces the *Woman's Home Companion*, the *American Magazine* and some smaller publications.

Evidently the Abitibi company was desirous of having a closer contact with the publishers of newspapers. The Mead company had a contract which had some years yet to run. The Abitibi company went into the hands of a receiver at the time that practically all of the manufacturers of white print paper in Canada encountered the serious conditions, incident to the depression, of reduced tonnage. It is one of the largest producers of white print paper on this continent.

The late R. T. Houk, Jr., was president of the Mead company, having succeeded Mr. Mead several years ago. Following Mr. Houk's death, Mr. Mead again assumed the executive duties of the company, and P. S. Church was elected vice president. It is understood that practically all of the stock in the Mead company was owned by Mr. Mead.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Industry Production Ratios for designated weeks.

	Reporting Mills Number	Reporting Mills Capacity	Total Production Ratio
*Week ending September 1, 1934	269	107,121	75.7%
*Week ending September 8, 1934	291	107,676	52.5%
*Week ending September 15, 1934	287	112,372	58.3%
*Week ending September 22, 1934	291	119,926	60.8%
*Week ending September 29, 1934	296	125,937	64.3%
*Week ending October 6, 1934	296	120,501	65.0%
*Week ending October 13, 1934	290	119,722	64.1%
*Week ending October 20, 1934	354	148,492	66.2%
*Week ending October 27, 1934	276	108,131	62.0%

The weekly paper capacity (based on 6 days of 24 hours each) for all mills operating wholly or partially under the General Code for the Paper and Pulp Industry is approximately 175,000 tons. This figure has been tabulated from mill questionnaires and in certain instances from daily capacities given in Lockwood's Directory of the Paper and Allied Trades.

Detailed statistics showing the number of mills reporting by ratio groups are given below:

NUMBER OF MILLS REPORTING *

Ratio Limits	Week ending Sept. 1 1934	Sept. 8 1934	Sept. 15 1934	Sept. 22 1934	Sept. 29 1934	Oct. 6 1934	Oct. 13 1934	Oct. 20 1934	Oct. 27 1934
0% to 50%	117	147	128	112	103	111	108	137	110
51% to 100%	152	144	159	179	193	185	182	217	166

*Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

Week ending	September	8—53	per cent
Week ending	September	15—67	per cent
Week ending	September	29—64	per cent
Week ending	September	22—62	per cent
Week ending	October	6—64	per cent
Week ending	October	13—64	per cent
Week ending	October	20—64	per cent
Week ending	October	27—63	per cent

Revised statistics covering delinquent mill returns will be shown in later reports.

L. J. Parent to Push Safety Campaign

L. J. Parent, vice president of the St. Croix Paper Company, of Woodland, Me., was named chairman of a committee to seek additional legislation appropriation to carry on the safety campaign at the seventh annual Safety Congress of the Maine Department of Labor which met at Augusta last week.

Marathon Starts Construction of New Addition

Two-Story Warehouse for Tissue Mill At Ashland, Wis., Will Be Used for Storage Purposes Only—Sterling Pulp & Paper Co. Contemplate Manufacture of Waxed Paper—Badger Paper Mills, Inc., Adding to Waxing Plant at Peshtigo

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 5, 1934—Construction of a two-floor storage warehouse has been started by the Marathon Paper Mills Company at its tissue mill at Ashland, Wis. The building will be 62 by 96 feet in size, with a full concrete basement, and will rise one story above the ground. It will be used for storage purposes only. The contract has been awarded to Roy Murphy Company, of Ashland, Wis., and the work will be completed within six weeks.

Expansion of manufacturing into the waxed paper field is reported to be under consideration by the Sterling Pulp and Paper Company, of Eau Claire, Wis., formerly the Dells Pulp and Paper Company. The company has been making fruit wrapper stock for many years and its line is therefore closely allied to the wax field.

Experiments are being made with the water supply of the city of Eau Claire to determine its purity. The city recently drilled a new set of wells in the northern part of the city, hoping to avoid the impregnation of iron and manganese found in the previous supply. This situation prevented the Eau Claire mill from considering changes of grade before. The experiments thus far are said to be successful as to water purity, and open the way for the company's expansion plans. The mill has been assured a flow of half a million gallons daily from the city plant.

Operations at the Sterling company are now about eighty per cent of capacity, with the possibility of being stepped up to 100 per cent within another month.

New Badger Offices Opened

New offices of the Badger Paper Mills, Inc., Peshtigo, Wis., were opened recently with public festivities. One evening was set aside for city, county and school officials and members of the Commercial club, who were served a cafeteria supper in the recreation rooms in the basement and then taken on a tour of the new building. A social hour with card playing also was enjoyed. About sixty attended.

Another evening was devoted to a public inspection of the quarters. Between five and six hundred persons took advantage of the invitation, and each was given two souvenirs from mill products.

The company's new office building is of brick and is two stories high. Its rooms and equipment are the most modern in every respect, and air conditioning is used throughout.

Construction has been started on the company's two-story concrete addition to its waxing plant. The building will be 160 by 60 feet in size. An example of the growth of production in this department is shown by the introduction of its waxed kitchen roll. A trial order was placed at the rate of 500 rolls a day. Today the demand is 15,000 to 22,000 rolls a day, depending on the season. Business generally at the mill also has shown improvement.

Paper Products Displayed

Paper mills, especially those appealing to the consumer trade, took full advantage of Wisconsin Products Week to display their products in most of the cities of the state. This was the second annual event of this kind and was sponsored by the Wisconsin Manufacturers Association. The purpose is to stimulate interest in buying products of local industries as a means of helping local employment. Many mill displays were put up in the windows of retail stores as a means of advertising and education.

Appleton Coated Paper Company, Appleton, Wis., won first prize in that city for having the best window display.

Paper Mill Employment Increases

An employment increase of 2.2 per cent in the paper industry from July 15 to August 15 was noted by the Wisconsin Industrial Commission in its monthly labor survey, according to its latest published report. This percentage applied also to allied industries of the paper mills. Industrial employment generally in Wisconsin was seven per cent greater in August, 1934 than in August, 1933, and 36 per cent greater than two years ago. Seventeen cities showed increases in both employment and pay roll.

Forest Protection System

When the Wisconsin legislature meets in January, a request will be filed by the Wisconsin Conservation Commission for an increase in the property tax for forestry purposes. The present tax is one tenth of a mill. More money is needed, according to Ralph M. Immell, chairman of the commission, for the forest protection system which is saving the timber from destruction by fire. It was shown during the last year that adequate patrolling and prompt control measures reduced the annual losses by $270,000 despite a period of severe drought. Expansion of the system is needed, but funds are available only if the legislature provides them.

Pulpwood Movement

A summary made by John Lindbloom, manager of the Newaygo Tug Line of the Consolidated Water Power and Paper Company, shows that 58,000 cords of pulpwood were towed across Lake Superior this season, mostly to the loading hoists at Ashland, Wis. Of this amount 42,000 cords went to mills of the Consolidated company. The remaining 16,000 cords went to the Lake Superior Spruce Company's hoist at Ashland for reshipment to the Rhinelander Paper Company, Rhinelander, Wis., and to the Munising Paper Company, Munising, Mich. Five rafts were towed across from the Pigeon River regions of Canada, and their value was placed at $580,000. The hoists at Ashland loaded out 1,669 cars for rail reshipment. For the first time, a raft entirely of balsam was towed across, but none of the anticipated difficulties of reloading at the hoist were experienced.

Paper Chemistry Institute Activities

John Spaulding, now employed in the technical department of the Oxford Paper Company, Rumford, Me., has been appointed to the staff of the Lawrence Institute of Paper Chemistry at Appleton, Wis., according to announcement of Dr. Henry Merritt Wriston, president of Lawrence College. Mr. Spaulding will work as a technical assistant at the Institute, and will begin his new duties within two weeks.

Purposes of the Institute were explained by Dr. Wriston to the student body of Lawrence College in a convocation address last week. The ideal behind it, he said, was to draw industry and education together, attaining a balance between them. Three men given particular credit for founding the Institute are Ernst Mahler, vice president and general superintendent of the Kimberly-Clark Corporation; Westbrook Steele, executive secretary; and Dr. Otto Kress, technical director of the Institute. Thus far 79 students graduated from 43 colleges have been enrolled. Every graduate of the Institute has been given employment, Dr. Wriston said.

News of the Industry

Fire presumably from spontaneous combustion damaged one end of the Meyer Burstein & Sons waste mill at Neenah, Wis., last week. The blaze was discovered in the night when no one was working in the plant, and an hours' time was required to extinguish it. A large quantity of waste stock was damaged by fire and water, and the interior of one portion of the building was charred. The exact estimate of the loss was not given.

Damage estimated at $2,500 was caused to machinery at the Badger Paper Mills, Inc., Peshtigo, Wis., in a peculiar accident last week. The main line shaft got out of line, presumably because of a broken pulley, and caused parts of the machinery to break and fly around the room before the motors could be stopped. Workmen were endangered, but none was hit. The shaft was badly twisted, and had to be replaced.

Employees of the George A. Whiting Paper Company, Menasha, Wis., are the latest to form a credit union under the Wisconsin Banking Department. Articles of incorporation have been filed, with shares at $5 each.

Albert Zager, of Port Arthur, Canada, has accepted the position of general superintendent of the Wisconsin River Paper and Pulp Company, Stevens Point, Wis. He has been in Port Arthur for eight years, the last two of which were spent with the Great Lakes Paper Company as pulp mill superintendent, and later as assistant general superintendent.

Jack Apple, who has been superintendent of the International Paper Company's mill at Tonawanda, N. Y., has gone to Green Bay, Wis., to become general superintendent of the Fort Howard Paper Company. He formerly was employed at the International's mills at Marinette, Wis.

M. G. Gorrow, of Appleton, Wis., has been appointed manager of the northern division of the Wisconsin Michigan Power Company. He will be stationed at Iron Mountain, Mich. He succeeds C. E. Harger, who has been transferred to the head offices at Appleton, Wis., as superintendent of power for the company.

T. A. Pamperin, who was one of the organizers of the former Peshtigo Paper Company, Peshtigo, Wis., now known as the Badger Paper Mills, Inc., and Mrs. Pamperin, celebrated their fiftieth wedding anniversary at Green Bay, Wis., last week. A dinner and reception were held. Mr. Pamperin constructed and owned a number of power dams in northeastern Wisconsin during his career and disposed of them to public utility companies.

Joins Fibre Making Processes Inc.

Wm. H. Monsson, formerly with the Forest Products Laboratory, Madison, Wis., for six and one-half years, and recently sulphite superintendent of the Munising Paper Company, Munising, Mich., for four and one-half years, has joined the staff of Fibre Making Processes, Inc., of Chicago, Ill.

Box Board Production for August

Monthly statistics of Box Board for 94 identical manufacturers compiled from data furnished by the National Paperboard Association from reports of members, and by manufacturers reporting direct to the Bureau of the Census, are presented in the following table.

Rated (24-hour) capacity data of box-board machines in inch-hours in this report are based on last dryer width whereas those shown in reports published for earlier years were based on maximum trim width. The capacity data vary according to the normal number of days in each month.

Year and Month	Operated (Inch hours) (Based on last dryer width)			Production (tons)				
	Rated Capacity	Operated	Per cent of Capacity	Rated Capacity	Output	Per cent of Capacity	New Orders (Tons)	Unfilled Orders (Tons)
1934								
Jan.	14,660,767	8,386,520	57.2	401,900	230,311	57.3	218,169	63,328
Feb.	13,048,031	8,298,684	63.6	351,714	223,366	63.5	234,318	75,143
March	14,995,780	9,454,746	63.0	401,966	254,819	63.4	264,985	86,033
April	13,703,272	8,978,520	65.5	369,881	244,334	66.1	230,754	76,578
May	14,934,038	8,374,420	56.1	403,139	223,478	55.4	225,957	80,958
June	14,658,061	8,355,200	57.0	392,585	224,214	57.1	214,236	72,990
July	13,994,803	7,375,422	52.7	384,143	201,924	52.6	200,278	73,256
Aug.	15,077,417	8,902,258	59.0	419,635	246,266	58.7	246,187	71,523
Total (8 mo.)	115,072,169	68,125,770	59.2	3,124,963	1,848,712	59.2	1,834,884	.....
1933								
Jan.	14,210,696	7,679,402	54.0	392,770	205,326	52.3	207,214	36,065
Feb.	12,560,626	7,572,068	60.3	350,350	205,871	58.8	207,705	38,505
March	15,472,220	8,758,969	56.6	432,799	237,536	54.9	250,480	53,542
April	13,761,134	8,185,670	59.5	384,846	223,845	58.0	236,022	70,099
May	14,888,820	10,418,818	70.0	147,798	287,032	68.7	294,460	76,719
June	13,695,506	10,432,158	76.2	384,283	292,967	76.2	349,650	144,307
July	12,925,903	10,230,022	79.1	358,378	283,272	79.0	268,546	128,638
Aug.	14,403,798	11,228,582	78.0	404,838	312,747	77.3	307,321	118,298
Total (8 mo.)	111,918,703	74,505,689	66.6	3,126,062	2,048,596	65.5	2,121,398	.....

Year and Month	Shipments of box board [1]	Stocks of box board end of month [1]	Consumption of waste paper [2]			Stocks of waste paper end of month [2]		
			Capacity	Consumed	Per cent of capacity	Total	At plants	In transit and unshipped purchases
	Tons					Tons		
1934								
Jan.	187,557	77,825	305,410	173,251	56.7	206,063	178,284	27,779
Feb.	192,685	75,687	303,377	180,715	59.6	234,436	197,371	37,065
March	221,114	84,326	375,985	229,718	61.1	237,237	205,891	31,346
April	213,956	82,190	318,158	197,368	62.0	243,972	215,479	28,493
May	197,543	74,670	320,281	175,852	54.9	255,415	227,708	27,707
June	190,896	70,659	393,381	207,140	52.7	237,637	221,667	15,970
July	179,264	*69,119	418,098	224,549	53.7	257,855	230,129	27,726
Aug.	223,686	69,034	344,199	208,065	60.4	257,527	232,650	24,877
Total (8 mo.)	1,606,701	.....	2,778,889	1,596,658	57.5	.....	.....	.....
1933								
Jan.	149,743	80,925	277,582	143,909	51.8	164,829	142,964	21,865
Feb.	158,993	77,778	272,672	157,836	57.9	155,568	128,433	27,135
March	181,796	77,902	307,539	174,472	56.7	151,259	125,610	25,649
April	174,914	78,827	315,625	186,038	58.9	157,813	129,859	28,954
May	221,612	76,953	342,256	234,993	68.7	135,534	104,357	31,177
June	260,101	66,932	282,786	227,626	80.5	119,365	90,437	28,928
July	246,994	66,371	288,568	231,065	80.1	114,006	87,380	26,626
Aug.	252,036	63,965	327,179	252,346	77.1	126,067	103,460	22,607
Total (8 mo.)	1,646,189	.....	2,414,207	1,608,285	66.6	.....	.....	.....
Sept.	226,336	65,110	300,418	213,639	71.1	149,171	128,305	20,866
Oct.	191,989	63,315	300,480	182,895	60.9	159,107	143,074	16,033
Nov.	175,148	70,263	300,588	167,918	55.9	191,307	158,326	32,981
Dec.	152,712	64,965	288,196	145,397	50.5	193,771	172,231	21,540
Total (year)	2,392,374	.....	3,603,889	2,318,134	64.3	.....	.....	.....

* Revised.

[1] As reported by 78 manufacturers that showed production of 199,711 tons of box board for January, 195,662 tons for February, 219,452 tons for March, 211,985 tons for April, 199,226 tons for May, 186,937 tons for June, 179,683 tons for July, and 233,601 tons for August.

[2] Revised to include data reported by 82 manufacturers.

Find Freight Rates on Pulp Unreasonable

Washington, D. C., October 24, 1934—The Interstate Commerce Commission has handed down a decision in the case of the Bogalusa Paper Company, Inc., against the New Orleans Great Northern Railroad Company in which it found that the rate charged on wet wood pulp, in carloads, from Bogalusa, La., to Lawrence, Kans. are unreasonable. Reparation was awarded.

Newsprint Company May Lose Timber Rights

Opinion Generally Accepted That Premier Taschereau, of Quebec, Plans to Cancel Pulpwood Concessions to Company Selling Newsprint Paper Below Current Prices—Organization Would Find Great Difficulty In Fulfilling Commitments

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 5, 1934—While there is nothing definite yet to report regarding the new crisis which has arisen in the newsprint industry, the opinion is generally accepted that Premier Taschereau plans at an early date to make good his threat to cancel concessions to the company which has made a commitment with two of the leading United States publishers that would impose on the newsprint industry the necessity of maintaining throughout 1935 the current price of $40 a ton for their product.

The concessions consist of a reduction in stumpage dues and permission to cut timber less fully grown than had formerly been called for. The proposed action of the government is simplified by the fact that separate orders-in-council were passed for each company in extending these concessions to the newsprint industry. All that would be necessary therefore would be for the government to rescind the order-in-council granting the concessions to the company in question. The opinion prevails that withdrawal of the concessions will make it extremely difficult for the company to fulfil its commitments, especially in view of the fact that even with these concessions there is this year an increase in the cost of woods operations and in view also of the discount on American funds.

Effect of Chance Contract

Meanwhile the opinion is expressed that the time has come when the question must be squarely faced as to whether a chance contract that one newsprint company may have entered into can be allowed to tie up every other mill in Canada to another year of disastrous prices.

Here is how the matter is put by one of the financial news agencies:

"A peculiar practice prevails—set forth definitely in many contracts—that any contract may be rendered null and void in case some other publisher is able to secure a contract at a lower figure. Hence a 30,000-ton contract may abrogate contracts for 1,500,000 to 2,000,000 tons. All that this 'A.N.P.A.' has to do is to 'wangle' a little block of newsprint from a single Canadian mill at any price it chooses, and hold this up as a threat against the other mills fixing a price that will net a decent return on the investment, and on the public interest involved through the use made of natural resources. Surely then it is not unorthodox to support the Quebec Prime Minister in his threat of interference—an effort (perhaps too long delayed) to rescue an industry where 'individualism' has been running rampant. Shall a Two Per Cent Transaction Dictate Terms to Ninety-Eight Per Cent?"

Conference Urged

The *Quebec Chronicle-Telegraph*, which is pretty close to government sources of information in the provincial capital, urges that a conference be held between United States publishers and Canadian producers with a view to bringing about a more practical understanding between the newsprint consumers and the Canadian manufacturers, with the government sitting in as a party to any pact that might be made under the circumstances. In support of this proposal it quotes an unnamed citizen who states that from his many associations with American newspapermen he has always found a general desire to pay Canadian newsprint manufacturers a fair price for their product but they have not forgotten the manner in which the newsprint manufacturers endeavored to hold them up some years ago, and this feeling is not dead. In other words, they are suspicious of everything that is going on in Canada with regard to consolidations. Such a conference as is suggested might clear the air in these respects.

Other Sources of Supply

Another aspect of the question that is being discussed is the threat that the United States might develop other sources of supply. This threat is not taken as offering any immediate cause for alarm as it is felt that newsprint from southern pine would prove expensive while importations from Europe would not be so dependable as importations from Canada.

Another phase of the subject is that if the United States were, by these or other means, to block importations of newsprint from Canada, this country would in self-defence be forced to make a drastic revision of its whole tariff structure relating to imports from the United States.

Canada's Adverse Balance

As conditions now are Canada has a serious adverse balance of trade with the United States. Last year, for instance, the total imports of Canada from the United States amounted to $232,548,055 and the exports of Canada to the United States amounted to $143,160,400, leaving an adverse balance of $91,387,655. As Canada's exports include some $70,000,000 for newsprint, it will be seen how serious would be the situation were this commodity to be shut out from the United States market.

More Newsprint Sold in Japan

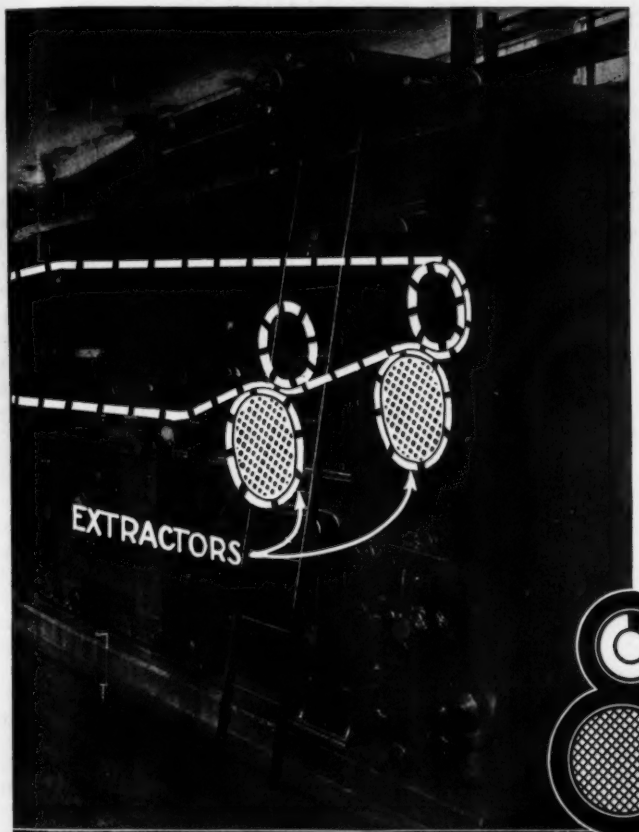
Canada is selling more paper to Japan, according to J. A. Langley, Canadian commercial secretary in Tokio. Mr. Langley states that Japanese imports of paper during the first half of 1934 amounted to 609,735 cwts., as compared with 534,258 cwts. for the same period of 1933, an increase of 14.1%. This increase is attributed to larger shipments of newsprint from Canada, from which about 80% of the total imports of paper originated.

Imports of newsprint which accounted for 62.4% of the total imports amounted to 381,700 cwts. in the 1934 period, an increase of 19.7% over the figures for the first six months of the previous year. This increased importation is credited to Canada, whose manufacturing plants supplied 99.1% of the total newsprint imports as against 98.9% during the first six months of 1933.

Imports of pulp into Japan for the first six months of 1934 when compared with the same period of 1933 showed an increase of 21.2% and amounted to 114,613 short tons. This was due undoubtedly to the continued activities in the Japanese rayon industry.

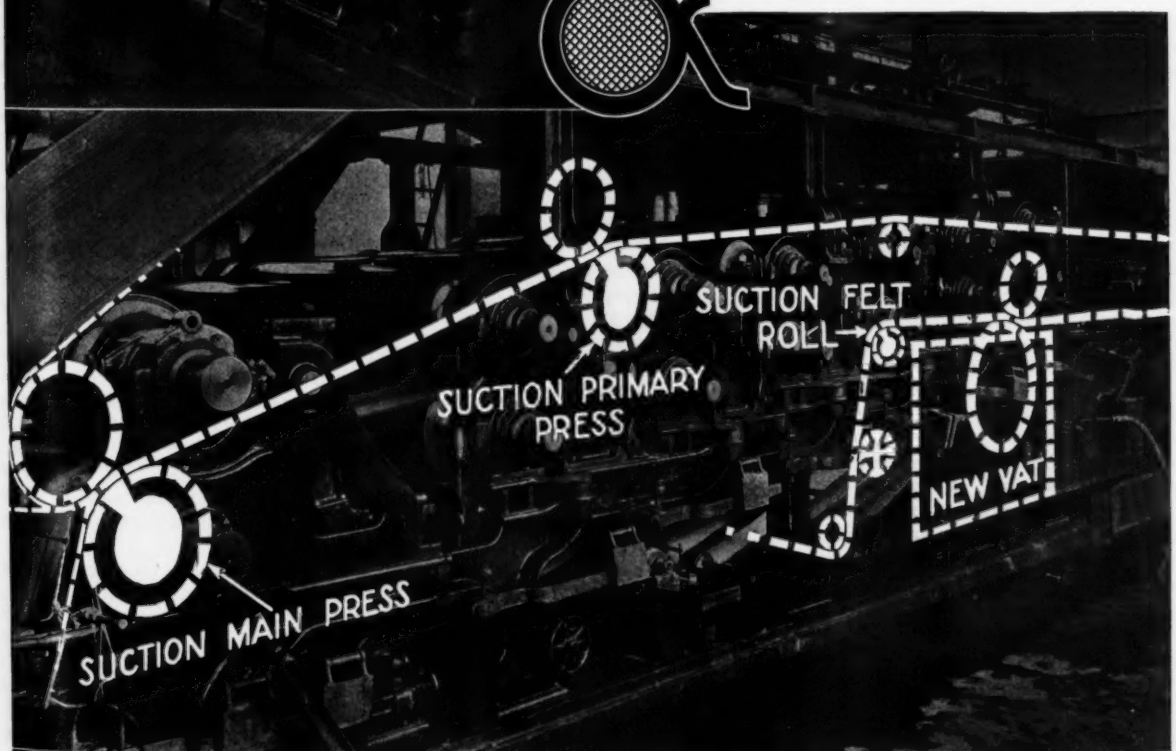
The principal supply countries were the United States, 36,657 short tons (25,546 in 1933); Sweden, 28,243 tons (12,466 in 1933); Canada, 10,628 tons (30,972 in 1933); and Norway 19,202 tons (17,787 in 1933).

DOWNINGTOWN



How Duo-Dehydration is Applied to the Conventional Board Machine

The modernization of any conventional board machine with Duo-Dehydration is easily accomplished in various ways, one of which is illustrated by diagrammatic outlines on the photographs. The monkey presses are removed and Downingtown Rubber Covered Suction Rolls installed as Primary Press and for the Main Presses. Two Extractor Units are installed after the last vat and Downingtown Suction Felt Rolls installed to keep the pick-up and press felts clean. A new vat, another stack of dryers and sometimes both can be added in the space gained. If you are interested in the results obtained by mills which have changed over to Duo-Dehydration, write the Downingtown Mfg. Co., Downingtown, Pa. Duo-Dehydration is covered by patents granted and applied for.



No Board Machine is Modern *Without* DUO-DEHYDRATION

Demand for Paper Well Sustained in Boston

Volume of Trading In Local Paper Market Fully Up to Preceding Week—Both Fine and Wrapping Paper Sections Continue Fairly Active—Box Board Division Practically Marking Time At Present—Paper Stock Dealers More Optimistic

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 5, 1934—The volume of sales of paper as a whole made by merchants of Boston and vicinity has been sustained during the week, estimated as fully up to the previous one. In a few cases, many small orders were received, but the volume was not so desirable as it might have been. In some instances business was "very good." On the whole, the amount was at least fair in both fine and wrapping paper. Collections were better. There was a considerable increase in the tonnage moved in napkins and towels. The complaint is made that prices are too low, with New England seeming to be the "hotbed of low prices." It is reported that there is a strong movement all over the country for higher prices. Box board continued in *statu quo,* with hardly a moderate amount of sales made.

An optimistic note is sounded by one dealer in paper stock, who feels that mills are getting to the point where they will place orders rather soon. He comments that mills have not bought very heavily all summer and in the fall to date and they must have about used up their supplies. During last week, business, with a few exceptions, remained dull. Bagging was a little more active, with domestic gunny in demand at 1.15 @ 1.20 f.o.b. New England, the same range that has prevailed for a few weeks. There was little or no demand for new domestic rags, on account of practically no demand for high grade papers. The call for sulphite papers of a lower grade prevails. If there was any reasonable demand in the United States for paper-making rags, intimates a dealer, there would not be such a large export movement. For the first time in the history of the trade, it is said, more rags have been exported than imported. The chief rag-producing countries of Europe are now importers. Waste papers are very dull.

The packers and the paper manufacturers are awaiting the outcome in regard to the minimum Government controlled prices of mixed papers and old newspapers at the expiration of the 90-days period, November 21. Those who advocated the minimum prices are now divided in opinion. Some would like to see an open market with no minimum prices. The geographical location of some packers makes it difficult for them to obtain the Code prices. The NRA prices under the law are not working, and it is reiterated that there is a better law—that of supply and demand. If the minimum prices had been put into effect, it is stated, in better times, it would have been "wonderful," but at the present time, mills can stay out of the market, a situation which, it is felt by some, tends to undermine the industry.

The Code Committee, it is understood, have petitioned to have the period extended another ninety days, because they feel that a state of emergency still exists. A member of the trade here, however, points to the recent meeting at the Hotel Commodore, New York, where prominent members formed the Temporary Association for the Protection of Waste Material Dealers. He also calls attention to a parade of waste paper packers in lower New York, with trucks bearing the sign, "Appealing Especially to Office Buildings for Cooperation in the Present Crisis."

News of the Trade

John Carter & Co., Inc., is mailing to customers the November issue of the "Sampleteer," an attractive new house organ, to be published monthly. The outside front cover indicates the contents, including "Observations on Weather, Women, Wealth, Cardboard, Hot Water, Printing, Paper, Selling, Life and Death, Envelopes, etc., with Special Emphasis on Samples and Prices for Persons Desiring to Get Down to Business." Philosophical remarks are included in the inside. Particular attention is called to the Devinne Smooth, upon which the editorial section is printed. Devinne Smooth, made at Holyoke, Mass., by the Crocker-McElwain Company, has proved very desirable for both offset and letter press printing. Attached to the inside back cover is a pocket, containing a variety of samples.

Carter, Rice & Co., Corp., is issuing an attractive portfolio of Highway Cover, containing printed demonstrations of various colors in the form of individual folders and a sample swatch, showing the weights and colors. The portfolio contains the three new colors recently added to the line, a striking yellow, a rich brown and a deep and lively blue.

Henry Ford, head of the fine paper specialty department of the Andrews Paper Company, has returned from a trip including New York, New Jersey and Pennsylvania. He found customers very optimistic, going ahead with more confidence than they were a year ago. The outlook is good on diploma paper.

The annual meeting of the New England Paper Merchants Association is to be held Thursday evening, November 8, for the election of officers. Reports from the representatives of the association attending the convention of the National association at Chicago, September 24-26 will be given.

The fall meeting of the Boston Paper Trade Association is to be held at the Exchange Club November 21. E. E. Whiting, formerly of the staff of the *Boston Herald,* now of the *Springfield Republican,* is to be the speaker.

Winthrop L. Carter, president of the Nashua Gummed and Coated Paper Company, Nashua, N. H., and chairman of the Industrial Committee of the New England Council, is to preside at a group session on November 23, of the Tenth New England Conference in Boston, meeting with the Governors of the New England States November 22 and 23. The subject of the session will be "New England Industry: Its Adjustment to Changing Conditions."

E. Davey Dodd, vice-president of the Davey Company, Jersey City, N. J.; H. D. Carruthers, special representative of the Collins Manufacturing Company, North Wilbraham, Mass.; Robert W. McCormick, of Knowlton Bros., Watertown, N. Y., and Joseph D. Starr, of the New York office of the Missisquoi Corporation, called on the trade last week. Mr. Dodd, who is a Princeton man, stayed for the Harvard-Princeton football game on Saturday.

Ontario Paper Mills Only Moderately Active

Manufacturers of Fine and Coarse Papers Find Difficulty In Keeping Machines In Operation —Demand for Paper Board Listless, Although Paper Box Trade Is Holding Up Well— Light Weight Papers, Including Tissues and Toilets, Moving Freely

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., November 5, 1934—In nearly all lines of paper the month of October closed with a lessened volume of business both from a manufacturing and wholesale standpoint. Spotty conditions prevailed throughout the month and there was a falling off in tonnage at the manufacturing plants, consumers cutting down on their requirements and direct accounts. Mills manufacturing fine and coarse papers have had some difficulty keeping their machines in operation and orders for future delivery have been light. Current business, however, has been fair, although it too has suffered. A few lines have kept up, notably glassine, waxing and grease proof papers, and the general run of light weight papers, such as tissues and toilets, along with specialties in these sections.

Both fine and coarse paper mills have been quiet under a light demand and both the manufacturers and wholesalers in these classes have experienced a lack of business that was unlooked for at this season of the year. There has also been some slackening off in business with the paper board mills, although, on the other hand, the paper box trade has been doing better of late.

C. V. Hodder, secretary of the Canadian Paper Box Manufacturers' Association, Toronto, told the PAPER TRADE JOURNAL: "We are pleased to report that there has been a slight increase, both in folding and set-up boxes, and, we believe, corrugated. It is true the advance has not been great, and it is equally regrettable that prices have not yet been advanced to the point which would indicate a reasonable return on investment made. But the tendency is, however, upward, even in the price structure, despite the fact that we can all point to places where prices have continued to drop. We have a lot to be thankful for in this Dominion. Conditions might have been considerably worse, and we are indeed fortunate that the industry as a whole has been able to hold up its head, pay its bills, and continue to go to work."

Government Plans to Reopen Mills

The Hon. Peter Heenan, Ontario Minister of Lands and Forests, in an interview at Windsor, Ont., a few days ago, revealed that the Provincial Government was working on a scheme to bring permanent relief to the newsprint industry in Northern Ontario. It was intended, he said, to establish new industries in the North country that will utilize the vast timber resources and put into operation many of the mills that are now idle. While unable to disclose the plan just now, it would be one of considerable magnitude, Mr. Heenan said.

The Minister declared that he was far from satisfied with conditions in the North, where he acted as mediator between strikers and employers in the pulpwood industry. He had offered to meet the demands of the strikers in the Sault Ste. Marie area, except in the matter of wages, but he promised to appoint a commission to enquire into conditions, and if the findings revealed the companies were in a position to pay more money the Government would endeavor to find means to remedy the situation, the Minister said. "I was able to meet all demands of the strikers, twenty-five in number, with the exception of two.

"One of the demands I was not able to meet related to wages. In this connection I proposed a board or commission of enquiry that would be able to take evidence under oath, inquire into working conditions, wages paid and, if it is found more wages can be paid, I will do everything possible to have the increase effected, such increase to date back to the time the strikers went to work," he stated.

Moore Companies Doing Good Business

The Moore Corporation and F. N. Burt Company, headquarters Toronto, are in an exceedingly liquid position in spite of the adverse influences of the depression period. Better earnings than in 1933 were achieved by both companies in the first half of the year, but since then there have been certain marked differences in the experiences of the two companies. If the last quarter's earnings continue on the same scale experienced in the first half of October, the year should show a decided gain in sales and earnings over 1933.

The two companies are bracketed because they have the same president, S. J. Moore, of Toronto, and because some correspondence in financial and industrial policies can naturally be expected to follow the fact that they have their head offices at the same place in Toronto and that the two companies have five directors in common, in addition to other directors. They are alike too in that both companies do about 90 per cent of their business in the United States and the other ten per cent in Canada. Their fortunes, therefore, have a barometric rise or fall in relation more to the course of business in the United States than in Canada. In other respects they diverge.

The Moore Corporation is a holding company whose subsidiaries are engaged in the manufacture of sales books, manifold books and forms, Flat-Pakit photographic registers and continuous business forms. F. N. Burt Company manufactures paper boxes, paper products, moulded paper novelties, folding cartons, rigid paper boxes, jewelry boxes, round boxes and mailing tubes and cores.

The F. N. Burt Company had considerably improved business in the early part of 1934 but found it slowing up considerably in the summer. Business has picked up once again this Fall and on the year to date. As the company depends to a large extent on the large makers of luxury products its greater sales are made in the last quarter which includes the Christmas business.

It has never had more orders on its books than now, but as these orders are in the nature of contracts to fill "all" paper box needs of important companies, this means that the company's business responds almost directly to the changes in public demand for a wide variety of luxury products. It supplies containers for high class soaps, cigarettes, chocolates and many products which gain sales appeal from covers that suggest daintiness, cleanliness and high quality.

Chicago Paper Market Sentiment Improves

Steady Upward Movement Experienced During Past Weeks Continues to Prevail—Productive Efforts to Eliminate Price Cutting Stabilizes Paper Industry On Higher Level—Various Grades of Fine Paper In Better Request

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 5, 1934—Improved confidence, engendered by the continued slow but steady upturn of the past weeks, continues to pervade the Chicago paper market. The busy season for many grades of paper in this territory finds business responding fairly well to an improved business tone. Locally prices are inclined to firm more appreciably each week, according to the word passed out by local paper executives. The stabilization of the markets on a better level and productive efforts to eliminate price cutting have had a salutary effect and local representatives feel that the paper industry has fared about as well as any in the New Deal picture. However there is a distinct hope that production costs will not go to sky high limits and thus ruin any possibility for a semblance of profit under existing conditions.

Book and Cover Markets Fairly Active

The book and cover markets here were fairly active during the week. Fine papers were reported in better demand, the market consistently firm. Kraft jobbers found local business a bit more willing to make commitments as the retail picture here showed some improvements. Locally, while heartened by some measure of stability, representatives of newsprint mills feel that a price of $41.00 is not going to do a great deal of good when actual costs of production top that figure. There is a conviction that the price must reach close to $50.00 to do any real amount of good in this market. Groundwoods were more active but still continued to feel the unsatisfactory situation in newsprint. The local waste paper market was stirred up over the injunction filed against a number of local houses in a bill charging conspiracy in relation to prices.

Fifty-two paper mills, dealers and individuals were charged with a conspiracy to fix the prices of waste paper and its finished products in this territory in a suit filed on October 31 in the circuit court. The plaintiff is the American Paper Stock Company and its chief executive. The bill, according to published statements, was filed by H. R. Chapman, attorney, and named twenty paper mills, twenty dealers, who sell waste paper to these mills and twelve agents of these companies. Twelve of the dealers named are, according to reports, members of the Chicago Waste Material Institute, and the dealers are customers of this Institute, says the bill. Included in the list are practically all of the important firms of this type in the city. Information concerning the bill says that all of the defendants are alleged to have entered into a conspiracy to put the American Paper Stock Company out of business by price fixing and boycotts—the charges contained within the bill. The court procedure will be in an effort to secure an injunction restraining the defendants from interfering with the business of the American Paper Stock Company.

Defendants named and contacted by the PAPER TRADE JOURNAL said that the majority of the subpoenas were served at a meeting held on October 15 at the Blackstone Hotel—the regular monthly meeting of the mill and paper stock dealers. The subjoena called for court appearance on December 5. The American Paper Stock Company is located at 3544 South Morgan street, Chicago. Naturally, the outcome of the trial will be watched with interest by not only the defendants and the plaintiff but by others concerned with efforts to carefully study the waste paper market in this territory.

Link-Belt Co. Expands

Announcement is made by Link-Belt Company, Chicago, suppliers to the paper manufacturing industry, of the purchase of the physical assets of the Bailey-Burrows Manufacturing Company, 1116 Murphy Avenue, Atlanta, Georgia. All divisions of Link-Belt's Atlanta sales office, heretofore located in the Haas-Howell Building, are being moved to the Bailey-Burrows plant, which will henceforth be known as the Atlanta plant of the Link-Belt Company. The new combined operations will be headed by I. H. Barbee, a Link-Belt engineer of long experience, who is being transferred from the Philadelphia plant. Mr. Barbee was formerly the manager of Link-Belt's office in Atlanta. R. L. Lowder and J. R. Martin, of the Link-Belt Atlanta office, will continue as a part of the new Atlanta organization, as will J. O. Bailey, of the Bailey-Burrows Manufacturing Company. Mr. Barbee says that with this personnel, the acquisition of all Bailey-Burrows machinery equipment, and the added stocks of Link-Belt conveying and power transmitting machinery which will be carried on hand, the reorganized Atlanta organization should be in position to serve the trade to much better advantage than heretofore.

News of the Trade

The Pilcher-Hamilton-Daily Company, Chicago, coarse paper merchants, still shaken up by the severe explosion which three weeks ago threatened to entirely destroy the building at 340 North Dearborn street, is now in the throes of a renovation program. Only this week the steel frames for the windows, shattered by the explosion in the cold storage plant next door to the Pilcher location, were placed, thus insuring daylight instead of boarded up windows. The coarse paper concern established some kind of a world's record for service when an actual delivery was made of an order only three hours after the explosion took place. Since that time the company has been able to maintain all schedules despite the severe handicap.

The Swigart Paper Company recently released a list of close-outs to the Chicago trade. The close-out, all perfect papers, included various grades of coated book; plain book; covers; catalog envelopes; bonds and writings; mimeographs; box covers; announcement envelopes; white wedding vellum; other announcement papers; text and vellum papers and announcement bristols.

E. A. Hall, Jr., for many years in Chicago with the Pilche-Hamilton Company, and now a manufacturers' representative located in Cincinnati has, according to Chicago acquaintances, been appointed a representative of the Calcasieu Sulphate Paper Company's line in the states of Ohio, Indiana, Kentucky, Michigan and Illinois. Which means probably more frequent calls for Mr. Hall in this territory than in the immediate past.

Modernizing for Profits

"We have expended over $150,000 in machinery changes this year, but the $10,000 or $15,000 that we put into modernizing our old beaters will pay for itself the quickest of anything we have done."

(Told by the General Superintendent of a big successful mill in the middle west)

OUR MODERNIZING WORK in stock preparation runs into *hundreds* of tubs, rolls, Dilts Hydrafiners, Dilts New Type Beaters, improved agitators and better stock preparation in general. Even in these very bad years of 1933-1934 we have *modernized* in many mills including the following:

American Pulp Corporation
Armstrong Cork Company
Atlas Waste Mfg. Company
Auglaize Box Board Co.
Berst-Forster-Dixfield Co.
Bird & Son, Inc.
Champion Fibre Company
Chesapeake Paperboard Co.
Container Corp. of America:
  Carthage, Ind.
  Chicago, Ill.
  Manayunk, Pa.
Continental Paper Company
Dunn Sulphite Paper Co.
Eddy Paper Corporation
Endicott-Johnson Corporation
Fibreboard Products, Inc.
The Flintkote Company
Fort Howard Paper Company
Fort Orange Paper Company
Fort Wayne Corrug. Paper Co.
The Gardner-Richardson Co.
Gilman Paper Company
Glassine Paper Company
Johnson & Johnson
Knowlton Bros.
Latex Fibre Industries, Inc.
Missouri Mapes Corporation
Moore & Thompson Paper Co., Inc.
National Cellulose Corp.
National Folding Box Co.
Ohio Box Board Co.
Oswego Falls Corporation
Penn Fibreboard Corporation
Pioneer Paper Company
Racquette River Paper Co.
St. Regis Paper Company
San Rafael Paper Company
Schmidt & Ault Paper Co.
The Sterilek Company
Superfine Paper Mills, Inc.
Sutherland Paper Company
Tomahawk Kraft Paper Co.
United States Gypsum Co.:
  Gypsum, Ohio
  Lancaster, Ohio
  Oakfield, N. Y.
Upson Co.
Victoria Paper Mills Co.
West Jersey Paper Mfg. Co.

Let us modernize your mill; it will pay you bigger profits

"YOUR PAPER IS MADE IN YOUR BEATERS"

-Dilts-

MACHINE WORKS, Inc., FULTON, N. Y.

Paper Demand Is Better in Philadelphia

Business Sentiment Is Decidedly Better and All Factors in the Situation Point to a Steady Improvement in the Demand During November—Index Figures for Paper in the Third Federal Reserve District for September Show Considerable Betterment

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 5, 1934.—Business is better. Business sentiment—and it is an important factor—is a lot better. The basic factors which go to make up the business picture of the paper trade all point to steady improvement in volume for November. No startling change is expected, but the recent increase in consumer demand for standard grades is making itself felt in the depleted primary stocks of paper merchandise, and production is beginning to step up a bit. Reports from the retail trade indicate that this branch of the industry is ordering more extensively in anticipation of the holiday trade than for all last year.

Index Figures for Paper

The Third Federal Reserve District, which includes part of Pennsylvania and New Jersey and all of Delaware, in its bulletin just released, gives the following index figures for the wholesale sales of paper, which includes all lines:

(Adjusted for seasonal variation)				(Not adjusted)			
Sept. 1933	July 1934	Aug. 1934	Sept. 1934	Sept. 1933	July 1934	Aug. 1934	Sept. 1934
59	63	62	61	61	59	58	62

(Adjusted indexes allow for the usual seasonal change which results from an uneven distribution of business between the months of the year.)

(Unadjusted indexes reflect merely the actual change which may or may not be up to the usual seasonal expectations. Index numbers represent percentages of the 1923-25 average taken as 100, and all figures are rounded from original data.)

Sub Committee of Trading Area Meets

The Sub Committee of the Philadelphia Trading Area held its regular meeting this afternoon at the headquarters of the association in the Drexel Building. Wm. S. Wilcox, chairman, who presided, stated that it was just a routine meeting and nothing of unusual interest was brought up for discussion.

Waste Paper Demand Slow

A slump still prevails in the waste paper trade. Those in the trade here are marking time, anxiously waiting for the outcome of their petition to Washington for an extension of the minimum price plan, which expires on the 21st of this month. Originally, the minimum price arrangement was for ninety days, and as the expiration of this agreement is close at hand, and the trade being desirous of having a continuance, it was unanimously agreed to petition the NRA Authority at Washington for these additional ninety days, approval of which, however, has not yet been received.

Paper and Cordage Men to Meet

The Philadelphia Paper and Cordage Association, Inc., will hold its regular monthly meeting on November 16 at noon in the Adelphia Hotel, at which time the meeting will be given over to nomination of officers for the ensuing year, and plans will be crystallized for the annual Christmas party, which is definitely fixed for December 19. There will not be any guest speaker at the November meeting, as has been the custom at these monthly luncheon gatherings. The nominating committee, which consists of Vincent A. Dirvin, Paper Manufacturers, Inc., chairman; James Andrews, Schuylkill Paper Company; Willard Parkes, Garrett-Buchanan Company; Ellsworth L. Richards, Buffalo Envelope Company, and Ralph Matthias, Matthias Paper Company, will announce the nominees. The guest of honor at the Christmas party will be Hon. Hampton E. Moore, Mayor of Philadelphia. The association will be host to fifty poor children, recruited from the ranks of the Salvation Army, who will be treated to a turkey dinner and all the fixin's. A Christmas tree, decorated by members of the association and their wives, will grace the occasion. A four-piece orchestra will furnish music for this gala event. After the festivities are concluded, useful garments, toys, etc., will be distributed by Santa Claus. Leslie C. Bartlett of the Eastern Paper Company, 401 North Broad street, is chairman, and together with Ellsworth L. Richards, Frank A. O'Neill, Jr., Louis A. O'Neill and Walter Clark are sparing no effort to make this day an outstanding one in the annals of the association.

General Trade News

A decree confirming account of receiver in equity of the Jessup & Moore Paper Company, and ordering distribution of fund was filed by Judge Kirkpatrick of the United States District Court.

T. H. B. Smythe, president of J. L. N. Smythe Company, and the Philadelphia Paper Trade Association, who was reported last week in these columns as having undergone an operation for appendicitis, is now convalescing at his home in Chestnut Hill, and is expected to be back at his desk in a couple of weeks.

German Paper Market Spotty

The paper market in Western Germany is spotty, according to a recent report from Vice Consul James H. Wright, Cologne. Some of the mills report a sufficiently brisk demand for their product to keep them well employed, while other concerns producing different papers report market conditions poor. Some improvement is observable in the fine paper market since June. Domestic business is described as good where special papers are concerned, but as sub-normal for the staple fine grades. Exports continue to suffer from the general difficulties confronting export trade today. The immediate outlook for the fine paper industry in Western Germany does not promise any substantial improvement. In the packing and wrapping paper group, conditions are more irregular. Some firms are reported to be well occupied, while others complain of the necessity of operating on reduced shifts. Some improvement, however, is looked for in the coming months. This branch of the industry is largely dependent upon imported raw materials, and any curtailment here would necessarily entail a corresponding decrease in the output of paper.

Twenty Years of Shuffling

By J. O. Parks

A chill Tuesday night in November 1912 will always remain in my memory. Woodrow Wilson had been elected President, and it was my second 13 hour tour in a paper-mill. That night we got 22 sets of "shipping rolls" and any one who has ever bucked the edges on the old shaft winders throughout a long tour will appreciate that as some feat for a 14 year old boy. Before the end of the week I had hunted in vain for paper stretchers, and buckets of suction. Was baptised from the roof with a pail of color. All this being a novice's initiation into the Royal Order of Haymakers, the final degree being the first time one's fingers were pinched in the calender stack. Whiled many hours away during the long nights talking to the veteran machine tender. From him, I learned much that profited me later. His tales of other mills and places, created in me an indescribable urge to move, that to this day, after 22 years, is as strong as ever. Drumwinders had become common, it was no longer necessary to be built along truck horse lines to run a winder, so late in the spring of 1913, I quit my first job.

Hamilton, a Stopping Off Place

The first step was a short one but to another state. Hamilton, Ohio in those days was a stopping off place for all the traveling fraternity. Went running winder for one of the best known among them. He soon quit to continue his rounds. Seeing an opportunity to learn the road from one who knew it, I joined him. We went North to Little Falls, Minn. Saw the fag end of the summer here in Colonel Lindbergh's home town. Then westward to Spokane, worked a few months for Mr. Goodenough at Millwood in the heart of the Inland Empire. On to Oregon City, saw Bill Sheahan and his recent invention, the carrier ropes on the driers, also the first power driven stretch on wet felts and the smoothest paper handler of my experience "Donkey McLynlock." One machine was running over 600 F. P. M.

From There To Floriston

From there to Floriston, Cal. This mill was 5300 feet up in the air the angels breathe. Hit Colson, boss finisher for a job. Told him what a good boy I was. He said he believed me, but as most of his men were ex-convicts and reformed horse thieves, they would not work with me. That was a lesson to me, I never again offered a recommendation, verbal or written to anyone. However, Frank Perry put me on No. 3. Got my first "Yankee" experience. Most all the machine help were Italian, so when we left in midsummer I could curse a machine in two languages.

Howe Sound in B. C. came next. Here in late August, I lost my pal as he joined Vancouver's famous 7th Battallion. Over to Powell River for a month or so, then started East. Stopped at International Falls, Minn. Carried it over 5 foot driers for the first time. The fellows here could sure use drier spears, Bill Von Linn in particular. It got so cold the coffee urn in the Rex hotel froze up. Pulled out for Chicago. After 6 weeks at the old Water Ways Mill started South to Orange, Texas. Jim Ross was running machine with a fine little Englishman, Coulson. Bo Beasley was superintendent. He later started Monroe, La.

Ed. Mayo In His Prime

After it got warm went over to Moss Point, Miss. That grand old man, Ed. Mayo, pioneer maker of Kraft in the U. S. was then in his prime. Pete Nadeau, who recently passed away was running machine. When I told the boys about the ropes in Oregon City, Mullins said, the nigger whiskey had affected my head but he was sure I didn't mean "no harm."

Went up to Roanoke Rapids, N. C. and here that winter a strange accident happened. One night a door opposite the couch blew open and the wire guide froze while running. The wire came ashore. Harry Smith was running. We could never make Jack Williams believe it but it was the truth.

Stopped in Covington

Stopped in Covington, Va. Saw Paddy Null, Carl Rumsey and a few more whom I knew. Was a good easy book job. In Piedmont, W. Va. in May. That mill was just going on 8 hours. Billy McKay gave me a job backtending on No. 5 for Bill Burns. He was a fine Irishman, the most original person I ever met. Nailed on more sticks in two months than in all the rest of my career, for HiBulk can sure slip. Made Richwood, W. Va., Middletown, Ohio. Kalamazoo, Mich., and was in Holyoke when the war started.

It was two years until I bawled out another third hand, and had a new vocabulary picked up in foreign lands. My first job in 1919 was in Wilmington, Del. Charlie Rumsey and Reddy Hensel were there then. The mill was still on two tours. Saw the country go dry, then up through New York State to Thorold, Ont.

Back to Stubenville in 1920

Back to Stubenville in 1920. Louis Shuh was super. Bill Byers and Jack Tiger, night bosses. I backtended for a fat Polock that looked like a billiken and had a gentleman of color running winder. Over to Grand Mere, Que. This machine had a 103 foot wire sloping 34 inches downward, and in August 1921 was going 1000 F. P. M. The movable Fourdrinier came in about this time at Grand Rapids. Back to the States at Joliet, Ill. This was a hanging job. Scott, Roshack, Klebs, and Allender were here. A good job in a brightspot.

Then to Salem, Ore. Joe Caster Sr. was in charge, got some experience on grease proof. The Quimbys, Buntins, Orval Wise, Bootjack Whitaker, Moarity and his dog were all here. We made the hay in the mill and the paper in the terminal pool hall. Back to Dayton, Ohio for Bert Hinkston. Ross was just leaving for Bastrop, La. Buntin, Quimby, Kendall and myself soon followed to the new mill under the Venerable Charlie Wilson. Some of the best men on the road saw service in either of the two mills in this town. But the fierce heat ran most of them off. Old man Moarity staged a famous snipe hunt here to the delight of all. From there to Monroe. This was a high climbing job for the machines were sure up in the air. Harry Williamson, Windy Rowe, Bill Jones, Red Hedlin were all making hay in this end of that State. Some of the boys "fool proofed" these jobs with chisel marks on the slice for different weights and various other ingenious devices. These were among the first high speed Kraft jobs so we all had much to learn.

Too Much Yeast in Fat Annie's Beer

A short trip down to Braithwaite in the old St. Bernard Parish below New Orleans. Sewing wire here was a three

man job. Two niggers with brambles to keep the mosquitoes off Bull McClowd. Mr. Milie of Beloit Iron Works had a coon to follow him around with an elder berry bush to keep him cool and free from insects while doing a remodeling job. Smudge pots were always burning in the machine room at night. Then over to Bogalusa. McGeehee was running machine. Had a back tender with a peg leg; he sure could get around. A top press roll stopped on this machine and did not break the sheet. When I discovered it, thought Fat Annie's beer had too much yeast in it but Mr. Coulson verified it. He was a vestry man in the church and shift boss.

Local Constabulary Too Strict

Next at Gordon, Ga. "Mail Pouch" Jones was superintendent. McDowell, Big Jim Mitchell, Dave Shifflet, Paul Prince and Wes Suttle were all here. The Pine tree Club there served the best food I ever sat down to. Saw Harry Williamson again at Canton, N. C. This time in the role of Pedagogue for he had a class in papermaking. It was the real "McCoy" for Harry had some good ideas. George Hively was boss. There is no one better to work for in all the game. If the local constabulary had been half as easy to please may have been there yet. Was fined $12.50 for telling stories in a restaurant during church hour, so pulled out to Kingsport, Tenn. Got there just as the printing works was starting. Most of the linotype operators, proof readers, etc. came down from Chicago. Mostly girls, some bunch, but like girls who know how to kill their own snakes. We had lots of fun while it lasted.

North Again To Madawaska

North again to Madawaska, Me. on a bond job. Made the pulp on one side of the international line and paper on the other. Then up the River Bend in Que. These were new Wamsleys and slickest jobs I had seen to date. The brilliance of the Northern lights here was wonderful. Started for the coast but stopped at Pine Falls, Man. Running machine here was the same as being in a bucket brigade. Poured enough gasoline on the first press to run all the tractors west of Winnipeg. Was just ready to rig up a periscope to watch the press draws when I quit as I got tired of climbing. So on to Ocean Falls in B. C. All the machines had jackets and some over 200 inches wide. It was a good mill to work in and the best gang I ever met. A Yankee drier which blew up here, was some mess. Took a trip down the coast to Pamona, Cal. in the Orange Groves. Then back to Port Townsend, helped get it going. Buntin was here and Jack Davis of Arkansas fame, both running. "Shiek" Davis was night boss. Moarity and his dog "Zita" were also on hand. Started to work one afternoon, saw 7 mills and was not sure which one I worked in so kept on going. Stopped again at Hodge, La. Picked up Lon Loggs and on to Mobile. These jobs were taking more than 15,000 pounds per hour. A machine tender was as busy as a one eyed dog in a butcher shop. Panama City in Fla. was taking 22,000 pounds per hour on .009. This was a record on board as it figured 42 pounds per square foot of its total drying surface. But a Minton Vacuum dryer in Longview, Wash. is now drying 68.5 pounds a square foot and that is hard to come up to.

Misses the Human Side

In my time many things such as automatic guides on felts, motor driven stretches, suction presses, continuous felt cleaners, frontside draw control, self unloading doctors, electric break detectors have all helped to make it easier. But personnel directors, physical examinations and slide rule superintendents are making it hard for those of us who like to go places. "Technical Control" and the "Bedeau Plan" have done much to kill initiative for it misses the human side of organization. To show up a man's faults is not the way to inspire him to do his best work. But it's hard to convince the boys with the red pencils.

Bulletin on Jordan Plugs

John W. Bolton & Sons, Inc., of Lawrence, Mass., have issued a new bulletin covering all types of Jordan plugs. The interior 2-page spread is a comparative product sheet, in which red, yellow, and green lights are used by the Bolton company to show what they claim to be a fair and square comparison of the advantages and disadvantages of various types of Jordan plugs. Space is left on the right hand side of the product sheet for the paper man to make his own scoring of the Bolton Wedgeless plug against the plug currently installed in his Jordans. Frank admission is made at the head of the scoring column that not all points are of equal importance in all mills. The bulletin should find wide demand and create much interest.

The Bolton Wedgeless is a patented plug that uses no wedge shaped woods driven down from above between the knives. Instead, the knives are key fitted into milled slots, an adaptation of turbine design which Bolton & Sons claim make their plug one of the most efficient and economical plugs for most mills.

Copies of the check chart may be obtained by writing to John W. Bolton & Sons, Inc., at Lawrence, Mass., and asking for, "What's the Score with a Wedgeless?"

Holyoke's Leading Taxpayers

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., November 6, 1934—The list of heavy taxpayers of the city was made public by the assessors the past week and showed that the largest taxpayer in Holyoke was the American Writing Paper Company, Inc., with a tax of $154,394. This is $14,000 less than last year in spite of a drastic reduction in the valuations.

The Farr Alpaca Company was second with a tax of $130,251; and the Holyoke Water Power Company third with a tax of $127,296. This last tax was paid under protest, the Company taking exceptions to some of its property valuations.

The Whiting Paper Company tax was $56,666, the Chemical Paper Manufacturing Company, $30,350, the Parsons Paper Company, $21,453 and the Worthington Pump and Machinery Corporation, $19,695.

THIS 1,500-LB. SELF-ALIGNING ROLLER-BEARING IS THE ANSWER OF SKF TO INDUSTRY'S DEMAND FOR LARGE HEAVY-DUTY BEARINGS, SAY R. H. DEMOTT, SALES MANAGER (LEFT) AND ROBERT C. BYLER, ADVERTISING MANAGER (RIGHT).

Obituary

Harry Reeve Angel

Harry Reeve Angel, chairman of the board of directors and managing director and founder of H. Reeve Angel & Co., Ltd., of London, importers of newsprint and sales agents for drawing and filter paper, died Monday, November 5, at his home in Tunbridge Wells, England, according to information received here. He was a director of H. Reeve Angel & Co., Inc., here and another affiliated company in Sweden. He was 61 years old.

Mr. Angel, who often visited the United States, was a gold prospector in his youth in the West. About thirty-five years ago he founded his firm, which imports large quantities of newsprint from Finland, as does his company here. He worked for Anglo-Finnish friendship and business accord, and on his sixtieth birthday received from the President of Finland the Order of the White Rose.

Surviving are Mr. Angel's widow, Mrs. Margaret Angel; two sons, Edward Reeve Angel and Eric Angel, and a daughter.

Edward A. Robbins

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 5, 1934—Edward A. Robbins, aged 85, who before he retired about seven years ago was for 34 years salesman in the Boston territory for Carter, Rice & Co., Corp., died Tuesday at his residence, 90 Hancock street, Lexington, Mass. Before becoming associated with Carter, Rice & Co., he was with Hallett Bros. Company, a former Boston paper house.

Mr. Hallett was born in St. Louis, September 19, 1849, the son of John Flavelle and Margaret Elizabeth (Harvey) Robbins, and was a direct descendant of Dr. Samuel Fuller, of *Mayflower* fame. He married Mary A. Hayden in Boston in 1885. They lived in West Newton until 1913, when they removed to Lexington. Mrs. Robbins died in 1915.

Mr. Hallett, who was highly esteemed, was a member of the Twentieth Century Club and for years was a member of the Unitarian Church in West Newton. Two daughters are living, Marie Almon Robbins and Marguarita Louise Robbins, both of Lexington.

J. N. Matthies

TONAWANDA, N. Y., November 5, 1934—J. N. Matthies, superintendent of the Tonawanda Boxboards, Inc., plant here, passed away Sunday morning, October 28.

Approves Wage Scale

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 30, 1934.—The State Board of Conciliation and Arbitration filed approval for the main part the past week of the present wage scale at the plants of the American Tissue Mills, Inc., of this city. John F. Shea was named to represent the company and Edward S. Alden the employees. Attorney Thomas C. Maher argued the company case before the state board.

In the tissue wrapping department the inspector of napkins was advanced from $14 to $15 a week and in the job printing department the dozen or so hands get a five per cent increase. A number of departments are required by the finding to revise the piece work rates so that an employee of average ability can earn a minimum of $14.50 a week.

C. M. Haskins To Collect Assessments

By unanimous vote of the five members of the Code Finance Committee for the Scrap Iron, Non-Ferrous Scrap Metals, and Waste Materials Trade, Chas. M. Haskins of New York, has been selected as National Treasurer in charge of the collection and distribution of assessments authorized by the National Recovery Administration for the following five divisions of the waste material trade: Scrap Iron, Non-Ferrous Scrap Metal, Waste Paper, Cotton Rag and Scrap Rubber.

Classification reports and assessment blanks are being prepared and will shortly be mailed to every member of the trade. The collection of assessments is to be made in strict accordance with a plan approved by the National Recovery Administration and has also been made mandatory by approval of an amendment to the Code of Fair Competition for the Scrap Iron, Non-Ferrous Scrap Metals, and Waste Materials Trade. Before any assessment blanks are sent out the National Treasurer will qualify by furnishing to the Code Finance Committee a surety bond in the amount of $50,000, and under the National Recovery Administration's regulations monthly reports by disinterested auditors must be furnished not only to the respective Code Authorities but to the National Recovery Administration.

Mr. Haskins, the National Treasurer, has in his capacity as an association officer for many years had the responsibility of collecting and dispersing approximately one million dollars and his selection as treasurer is a guarantee that the work of the National Treasurer in the collection of assessments will be carried forward without the slightest discrimination in favor of any member of the trade whether large or small.

Increase Exports of Wood Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 7, 1934—Exports of wood pulp from Norway, Sweden, and Finland show substantial increases during the first eight months of the current year as compared with the corresponding eight months in 1933. Norway's exports of mechanical groundwood increased 25 per cent and of bleached sulphite pulp 20 per cent. Sweden's exports of bleached sulphite were larger by 6 per cent and of unbleached sulphite and of sulphate by 10 per cent. Finland increased its shipments of groundwood by 8 per cent, of sulphite pulp by 4 per cent, and of sulphate pulp by 2 per cent. Aggregate shipments from the three countries show an increase of 11 per cent for mechanical groundwood, 7 per cent of sulphite pulp, and 8 per cent for sulphate.

Goodrich Announces New Rubber Tape

A new type of rubber tape to be known as Goodrich Mending and Electric Tape recently has been announced by The B. F. Goodrich Company, manufacturers of Two-In-One Tape.

Because the usual 110 volt current always has been considered a menace to life and property, building codes require that rubber tape for electric wire splices contain more pure rubber than is found in ordinary friction tape. Cotton cloth, a good conductor of electricity when moist, usually constitutes 60 per cent of the content of friction tape. Goodrich Mending and Electric Tape is 90 per cent pure rubber and a single thickness has tested to 8,000 volts. The new product has been tested and listed by the Underwriters' Laboratories and is expected to fulfill wide ranges of industrial use.

Indianapolis Demand Fair

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 5, 1934—A fair volume of paper business in most lines was reported last week. The proximity of the state elections caused an increase in demand for some lines, notably for ballot paper and newsprint. In fact the leaders in the trade appear to be taking a more active interest in the election this year than they usually do. A heavy amount of political advertising was seen in all sections of the state. This is cash business for the newspapers, for Indiana papers have learned long ago that a defeated candidate is a poor credit risk and the rule is cash in advance for all political advertising.

It is generally believed that business will improve once the uncertainty surrounding election is dispensed with. One reason for this belief is the continued good volume of inquiries being received. The inquiries are not confined to one or two grades, but cover the entire market range pretty thoroughly. However, the trade is not expecting much contract buying until after the first of the year. The general disposition will be to hold inventories as low as possible until the new year breaks.

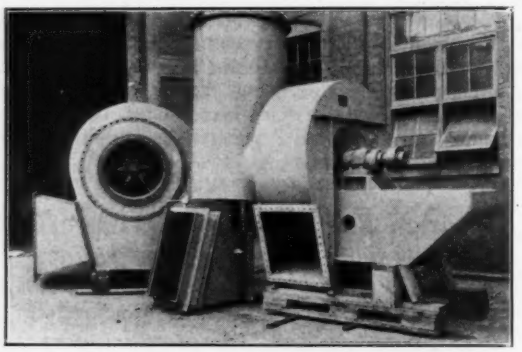
The trade believes there is certain to be an increase in newsprint prices. Demand for the last half of the year will hold up well, judging from the third quarter, with lineage considerably ahead of last year.

Container demand also holds up well. The container factories in the state are operating nearly to capacity and their production is being sold, little of it finding space in warehouses for future sales. Prices are well maintained. A fair volume of tissues is being sold. The coarse paper market also reflects the general trend. Demand for fine papers is about the same as it has been for a month.

Mill demand for paper stock is not all it should be. The local trade is complaining about poor offering prices in both paper stock and domestic rags. The better grades of rags seem to be more in demand.

Acid-Proof Rubber Covering Applied To Large Exhaust Fan Unit

The practicability of utilizing acid-proof rubber covering to eliminate destructive corrosion is exemplified in the



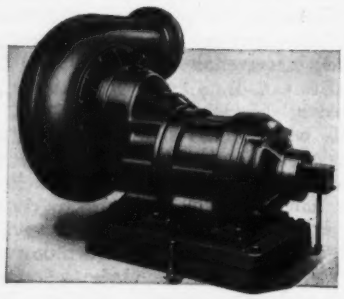
accompanying illustration showing large exhaust fan units recently rubber covered by The Manhattan Rubber Manufacturing Division, Passaic, N. J.

This covering is a specially-developed acid-proof rubber compound applied by a perfected process to the metal surfaces of the fan unit.

The process of uniting rubber to metal holds the rubber covering in place so tenaciously that after vulcanization, the cover cannot be removed without tearing and destroying it.

Geared-Head Turbo-Blowers

A new, exceptionally compact Centrifugal Compressor (Turbo-Blower), making use of a gearmotor, is introduced by Allis-Chalmers Manufacturing Company. By using the gearmotor for speed increase, the blower can run at higher than motor speeds, thus reducing dimen-



sions and improving performance. Pressures from .75 lb. G. to 3.0 lb. G. are developed, the volumetric capacities corresponding to motor outputs from 3 to 30 hp. The units have application for foundry cupola blowing, oil and gas fired furnaces, pneumatic conveying, agitation and aeration, and for similar moderately low pressure air or gas supply services.

M. & O. Paper Co. Net Up $11,090

The Minnesota & Ontario Paper Co. and its subsidiaries earned a net operating profit of $11,090 in the first half of this year, compared with a net deficit of $507,843 in the first six months of 1933.

The figures are shown in the quarterly report of C. T. Jaffray, R. H. M. Robinson and Shreve M. Archer, trustees, and made public in a letter to security holders from the bond holders' protective committee in Chicago.

Net sales of the company in the six months were $4,919,808 compared with $3,811,852 last year to July 1. Operating and other expenses increased from $4,319,659 in 1933 to $4,908,717.

After charges for interest and depreciation the company had a net loss for the six months of $1,767,440, slightly more than half of the deficit of $3,334,599 for the 1933 period. Charging off this loss reduced the surplus of the companies from $22,063,282 to $20,685,432.

Join Brown-Bridge Sales Force

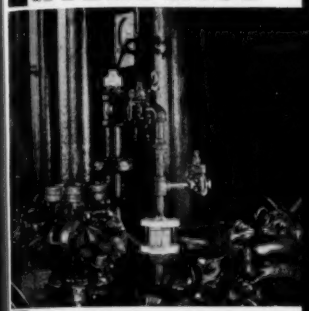
Recent sales force additions of the Brown-Bridge Mills, Inc. of Troy, Ohio include Charles A. Haas of 420 Market street, San Francisco, Cal., and George H. Batchelder of 1520 Locust street, Philadelphia, Pa. They will represent the Brown-Bridge Mills in their respective territories and will be in close touch with paper merchants and corrugated box manufacturers in the interest of Red Streak Gummed Tape and "flat as a pancake" gummed label papers.

Both Mr. Haas and Mr. Batchelder are well known in their territories. They have a following of friends who will be interested in learning of their new connection.

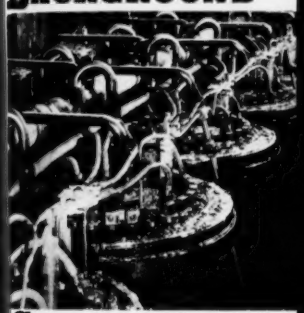
National Aniline Joins TAPPI

The National Aniline and Chemical Company has become a company member of the Technical Association of the Pulp and Paper Industry and will be represented in the Association by Ivan Ekholm who is well known in the paper industry.

ENTERPRISE



BACKGROUND



GROWTH

In the ancient city of Damascus, th art of making perfectly tempered stee was developed to such a high degree c proficiency that the name of the cit became synonymous with "fine steel'

Damascus is remembered as a city tha did one thing so well that it com manded the respect of the entire world In a modern industry—the making c Liquid Chlorine—a similar name an reputation is being built. Today th name EBG is synonymous with purity and uniformity in Liquid Chlorine. I illustrates again the old principle o "doing one thing well".

There are three good reasons for th reputation of EBG. Enterprise: the firs in the country. Background: the oldes in the country. Growth: more user than ever before. Three logical reason why you should always "look for th red cylinder".

EBG Liquid Chlorine

FIRST IN THE COUNTRY

ELECTRO BLEACHING GAS COMPAN

Main Office: 9 East 41st Street, New York, N. Y

Plant: Niagara Falls, N. Y.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Troy, Ohio—Gummed Products Company, manufacturer of gummed paper tapes and allied paper goods, is considering plans for new addition to local paper converting plant. Cost reported close to $25,000, with equipment. It is understood that an architect has been selected, name temporarily withheld. Paul Herrlinger is one of the heads of the company.

Ashland, Wis.—Marathon Paper Mills Company, a Division of Menasha Products Company, Menasha, Wis., plans new one-story addition to local mill for storage and distributing service. No estimate of cost announced. Permit has been secured.

St. Louis, Mo.—The Missouri Envelope Company has been organized by Robert P. Hecker, Kirkwood, Mo., and associates to operate a paper converting plant for manufacture of envelopes and allied paper products. It is understood that company will succeed to organization of same name, with local headquarters at 16 North Third street.

Peshtigo, Wis.—The Badger Paper Mills, Inc., manufacturer of waxed and other processed paper stocks, has superstructure under way for new addition to mill, recently referred to in these columns, to be two-story and basement, 60 x 160 feet. New unit will be equipped for expansion in waxing division, with portion reserved for printing department. Proposed to have building ready for equipment installation in near future. It will cost over $45,000 with machinery.

New York, N. Y.—The Modern Folding Carton Company, recently organized under direction of Samuel L. Cohen, 170 Broadway, representative, with capital of $25,000, plans operation of local plant for manufacture of paper boxes and containers.

Knoxville, Tenn.—The O. B. Andrews Company, Chattanooga, Tenn., manufacturer of paper boxes and containers, has work under way on new plant units on Dixie Highway, Knoxville, fronting on line of the Southern Railroad, where tract of land was recently secured. Buildings and equipment are reported to cost over $50,000, and will develop considerable increase in present capacity. General contract has been let to the Mark K. Wilson Construction Company, Chattanooga, as previously reported in these columns. O. B. Andrews is president.

Chester, W. Va.—The Otis Manufacturing Company, manufacturer of building papers, roll roofing, etc., has recently resumed operations at local mill, following curtailment for number of months, giving employment to about 30 men. Company is considering tentative plans for enlargement in present plant, work to be carried out next spring, with installation of equipment and facilities to double approximately present working quota. William G. Shotress has recently acquired a substantial interest in company. E. C. Otis is general manager.

Chillicothe, Ohio—The Mead Corporation, manufacturer of coated paper goods and allied stocks, has work in progress for rebuilding of four-story experimental laboratory building, recently damaged by fire, and will have structure ready for service in near future. Fire loss was reported at close to $70,000, with equipment, and reconstruction is expected to approximate a like sum.

Gloucester City, N. J.—The Furness Corporation, manufacturer of cellulose rayon products, in receivership for a number of months, is arranging for early reorganization under the new National Bankruptcy law. Application has been made to the United States District Court at Camden, N. J., and Alexander L. Rogers has been appointed temporary trustee in bankruptcy, pending reorganization. Company operates a large local mill, and proposes to place plant on active production schedule when financial plans are consummated.

Philadelphia, Pa.—The Stokes & Smith Company, Summerdale Station, Philadelphia, manufacturer of paper box-making machinery and equipment, has awarded general contract to the Robert E. Lamb Company, 843 North 19th street, for new one-story addition to plant, estimated to cost close to $40,000, with equipment. Work will be placed under way at once. Morris & Erskine, 1716 Cherry street, Philadelphia, are architects.

Ottawa, Ont.—The Continental Paper Products, Ltd., Wellington street, manufacturer of paper goods, has approved plans for new two-story and basement addition to paper converting plant for large increase in present capacity, and will place superstructure under way at once. General contract recently was let to the Foundation Company of Canada, Ltd., Montreal, Que. New unit will cost close to $40,000, with equipment.

St. Johns, Que.—The St. Johns Paper Box Company, manufacturer of paper boxes and containers, is said to have plans maturing for enlargement of mill for increased capacity. Additional equipment will be provided. Company is affiliated with the Dominion Blank Book Company, Ltd., St. Johns.

Ottawa, Ont.—The British-American Bank Note Company, Wellington street, has awarded general contract to the A. Garvock Company, Sparks street, for new addition to plant, to be two-story and basement, estimated to cost close to $50,000, with equipment. Work will be placed under way at early date.

New Companies

Cincinnati, Ohio—The Central States Papers Company, Inc., has been organized by Bernard H. Denning and A. J. Massman, to deal in paper goods of various kinds.

New company is represented by Leonard J. Dempsey, 211 East Fourth street.

New York, N. Y.—Ralph Gretsch & Co., Inc., has been incorporated with capital of $10,000, to manufacture and deal in paper products of various kinds. Ralph Gretsch, Forest Hills, L. I., heads new company, which is represented by Kommel & Zucker, 151 West 40th street, New York, N. Y. Walter Beh, 108-37 Ditmas boulevard, East Elmhurst, L. I., is interested in the company.

New York, N. Y.—The Millinery Paper Products Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to manufacture and deal in special paper products for the millinery trades. New company is represented by Harry F. Pearlman, 11 West Forty-second street, New York.

Waterbury, Conn.—The Globe Paper Company has been organized to manufacture and deal in paper products of various kinds. Samuel Graicerstein, Waterbury, is president and treasurer.

Boston, Mass.—The Federal Envelope Manufacturing Company, 282 Congress street, has filed notice of company organization to operate a paper converting plant for the manufacture of envelopes and allied paper goods. Company is headed by William N. Stetson, Jr., and John H. Brewer.

Wilmington, Del.—The Fulton Paper Company has been chartered under Delaware laws, with capital of 100 shares of stock, no par value, to manufacture and deal in paper goods of various kinds. Incorporators include C. J. Killoran and R. R. Martin. Florence F. Crossley, Wilmington, is company representative.

Chicago, Ill.—The International Fibre Products Corporation, 5256 Drexel boulevard, has been incorporated with capital of 100 shares of stock, no par value, to manufacture and deal in fibre products of various kinds. The incorporators are Milton P. Schreyer and Max Skolnik.

Long Island City, N. Y.—The Standard Corrugated Case Corporation, 40-08 Thirtieth place, manufacturer of corrugated boxes and containers, has filed notice of change in capital from $60,000 to $20,000.

New York, N. Y.—The Terminal Paper Bag Company, 25 West 43rd street, has filed notice of company dissolution under state laws. A new company of same name has been chartered under Delaware laws, with capital of 1000 shares of stock, no par value, to take over and continue business of first noted company.

Kansas City, Mo.—The Central Bag Company, Inc., has been organized by Milton Silverman, 5345 Harrison street, and associates, to manufacture and deal in paper bags and containers, etc.

Wilmington, Del.—The Cellulose Corporation of America, Inc., has been organized under direction of Corporation Trust Company, Industrial Trust Building, Wilmington, with capital of $80,750, to manufacture and deal in cellulose products of various kinds.

Hears Scandinavian Pulp Merger

SEATTLE, Wash., October 30, 1934.—The court controversy over the proposed merger of the Soundview Pulp Company, Everett, with three other large Washington pulp companies was resumed in the State Supreme Court today. The case was brought before the high court on an appeal from a Snohomish County court judgment which permanently enjoined the company from carrying out its consolidation plans.

The court is expected to assign the case for a written opinion.

New Line of Kennedy Gate Valves

The Kennedy Valve Manufacturing Company announces a new line of rising stem heavy standard bronze gate valves for 150 pounds working steam pressure and 250 pounds working water, oil or gas pressure.

This valve, known as Fig. 45, is a companion type to the new Fig 23 with stationary stem which was introduced earlier in the year. The operating mechanism employs solid wedge discs which are simple, heavily proportioned and accurately machined, and with no small quick-wearing parts which might cause trouble in service. This mechanism has been used for many years in other Kennedy Valve types and has proven to operate with ease and certainty in any position.

A flexible connection is provided between the disc and the stem so that the stem will not bind or spring when the valve is closed. The stem is made of a bronze composition with high tensile and torsional strength, and has a large number of contact threads in the bonnet.

The bonnet hexagon has been made extra-large and close to the body so that when a wrench is applied for installing or disconnecting, there will be no danger of distorting the bonnet. Additional features of this new Kennedy design are the deep stuffing box with gland and square section molded packing rings, the large non-heating malleable-iron hand wheel which is secured to the stem by a nut, and the heavy, wide pipe-end hexagons with generous number of threads.

Additional information concerning these valves can be obtained by addressing The Kennedy Valve Manufacturing Company, Elmira, N. Y.

R. L. Eminger Injured in Auto Accident

DAYTON, Ohio, November 5, 1934—The condition of Robert L. Eminger, secretary-treasurer of the American Pulp and Paper Mill Superintendents' Association, who was struck and seriously injured by an automobile in Hamilton last Thursday afternoon, is reported to be improved. He has been removed from Mercy hospital in Hamilton to his home in Miamisburg, 10 miles south of Dayton.

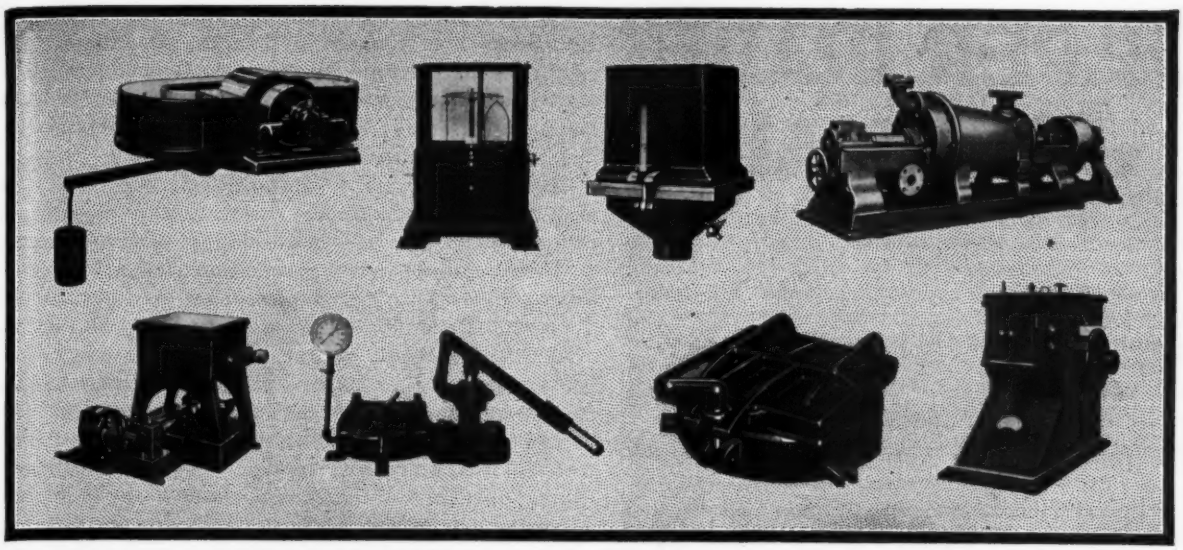
Mr. Eminger was hit when he stepped from the curb into the path of the car. The driver of the machine removed Mr. Eminger to the hospital after pedestrians assisted in placing him in the machine. Police were called but no arrests were made in connection with the accident as it was said to have been unavoidable.

At first it was believed that Mr. Eminger had sustained a fractured skull but attending surgeons at the hospital subsequently reported he suffered severe scalp lacerations, and bruises and cuts on his legs and arms.

Lawrence W. Case Gets Paper Patent

Lawrence W. Case of Manchester, Conn., is the recipient of a patent issued recently by the United States Patent office for the invention of a method and means for reproducing the grain of wood on paper.

The invention's six claims to originality and improvement were upheld by the department's examiners on whose report the patent was issued.



This illustration shows pictures of the Beater, Drying Oven, Sheet Mould, Jordan, Flat Screen, Hydraulic Press, Hot Plate and Size Tester.

If You Had NO COMPETITION . . . . you could probably get along without a completely equipped laboratory. Paper buyers would have to take what you gave them . . . and be satisfied.

Valley Laboratory Equipment:

Beaters
Washer Cylinders
Jordans
Sheet Moulds
Hydraulic Presses
Steam and Electric Hot Plates
Couch Rolls
Drying Ovens
Size Testers
Diaphragm Laboratory Screen
Fractionating Laboratory Screens
Clay Erosion Tester
Bleachability Tester

But such is not the case. Competition is keen. There is a steady movement of progress. New products . . . new improvements . . . new papers . . . new ideas . . . are constantly being developed.

Furthermore, there is an indispensable need in every mill for day-by-day testing . . . daily production control . . . and frequent checking of supplies.

Why not compare your present Laboratory Equipment with the list shown to the left, and then write us for full data on the pieces you do not have? One successful development may pay for your whole laboratory investment many times over.

VALLEY
Iron Works Company
APPLETON, WISCONSIN

Canadian Representatives:
Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

New York Office:
350 Madison Ave.

Beaters • Jordans • Voith Stock Inlets • Roll Wrapping Machine • Pumps • Deckers
Screw Presses • Laboratory Equipment • Plug Valves • Flat and Rotary Screens
Automatic Felt Guide • Hypoid Gear Drives • Voith Kneader

PAPER TRADE JOURNAL
ESTABLISHED 1872

15 West 47th St., New York, N. Y.

Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm
Washington Correspondent

Price, Per Copy, 10 Cents

United States, Per Annum, $4.00

Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCIX New York, November 8, 1934 No. 19

This publication is now and always has been printed on paper made in the U. S. A.

FOREIGN PAPER TRADE EXPANDS

Exports of paper and paper products from the United States recorded a further increase during the month of August, exceeding the July exports in this line by 17 per cent and those of the corresponding month in 1933 by 57 per cent, according to the Forest Products Division of the Department of Commerce. An encouraging feature in these increases is the rise in tonnage as well as in value.

Newsprint exports recovered from the sharp decline observable in the July shipments, August consignments reaching a total of 6,190,354 pounds. Exports of book papers were about a third less than in the preceding month, but were at the same time slightly in excess of those of the corresponding month last year. Shipments of all classes of wrapping paper improved during August, greaseproof as well as ordinary wrapping papers advancing between 30 and 35 per cent, and over-issue newspapers, extensively used in the Far East as a substitute for wrapping and packing papers, advancing 50 per cent. Among the heaviest increases were those recorded in the fine paper group, writings having increased by 120 per cent and tissues by 89 per cent.

Exports of boards, except for boxboards, continue to show little change. August shipments of the latter were 25 per cent higher than in July and 70 per cent above the August, 1933, shipments, but other classes of paper boards dropped 55 per cent under the July figure. At the same time vulcanized fiber exports dropped off 20 per cent and fiber insulating and wall boards 30 to 40 per cent.

In the converted products group, shipments of toilet paper increased by 12 per cent, towels and napkins by 9 per cent, paper bags by 70 per cent, boxes and cartons by 28 per cent, and papeteries by 27 per cent. Shipments of filing folders, index cards, and other office forms did little better than hold the level of the preceding month; shipments of envelopes declined by 14 per cent. The aggregate value of exports of paper and paper products during August was $1,805,776, as against $1,544,864 during July and $1,152,788 during August, 1933.

Imports of paper and paper products into the United States during August, in contrast to exports, declined 12 per cent in value compared with the preceding month, and were only 3 per cent above those of the corresponding month last year. August imports of newsprint, which represent between 85 and 90 per cent of the total imports, dropped off nearly 15 per cent, while other classes of paper and board show a decline of 7 per cent in aggregate value. August imports of newsprint, however, were 13 per cent in excess of those of the corresponding month last year, although owing to the generally lower prices prevailing this year, the value of these consignments shows an increase of only 4 per cent. Total paper and board imports during August were valued at $6,750,847, of which $5,934,533 represented 153,026 tons of newsprint and $796,314 other classes of paper and board.

Imports of paper base stocks into the United States during August dropped slightly under those of the preceding month and, with the exception of pulpwood, were considerably under the August, 1933, receipts. Imports of sulphite pulps show decreases of 20 to 25 per cent in volume, while imports of groundwood declined by 36 per cent and of unbleached sulphate (kraft) pulp by 38 per cent.

Proportionately larger decreases took place in receipts of bleached sulphate and waste stocks. Imports of pulpwood dropped off 12 per cent in volume and 3 per cent in value as compared with July, but were 57 per cent in volume and 80 per cent in value higher than in August, 1933. Total imports in this group during August were valued at $6,962,428, of which $1,411,607 represented 168,268 cords of pulpwood, $5,443,993, 143,976 tons of wood pulp, and $106,818, 4,484 tons of rags and other waste.

30-HOUR WEEK HELD BLOW TO RECOVERY

Speaking before the Association of Commerce at Baltimore, Md., last week, George A. Sloane, president of the Cotton Textile Institute, contended that the 30-hour week would retard and possibly break down all recovery attempts of President Roosevelt.

Mr. Sloane offered figures to support his contention that such a move would bring such increased costs of production as to necessitate prices so high as to precipitate a buyers' strike. In such an event, he declared, industries would be forced to curtail or suspend production altogether, thereby forcing people out of work rather than increasing employment.

Mr. Sloane also indirectly raised a question as to the actual net accuracy of unemployment figures when he asked:

"Without meaning in any way to minimize the seriousness of the unemployment situation, is not a good deal of our unemployment due to the fact that, as one of the by-products of the war, we have come to expect, perhaps unreasonably, to be able to give employment to several members of the family instead of to only one or two?

"Unfortunately there are no reliable statistics available revealing to what extent the large unemployment totals frequently cited reflect the employment of wives and daughters in some industries and trades during a period of active prosperity and who have now lost those jobs or are holding them at the expense of male workers.

"There is a certain mathematical plausibility to the thirty-hour week proposal," he went on. "It seems so simple. You take the number of available jobs, multiply them by 1.25 and reduce unemployment proportionately.

"Unless there is an increase in wages this would mean that 25 per cent of the pay of the existing employees in industry would be transferred to some now unemployed.

"It is in the second phase of the thirty-hour proposal where the real hitch comes—namely, increasing hourly wage rates so that the same week's wage is paid for thirty as for forty hours. This would mean a 33 1-3 per cent increase in labor costs.

"The increase in price in the present situation would mean in many if not in all industries a buyers' strike of more or less severity. This in time would mean the cutting down of available work as a result of decreased purchases which could be expected inevitably to decrease production and consequently weekly pay envelopes."

Says Paper Industry Is Improving

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., November 6, 1934—Clayton Demers, for many years chief engineer of the Union Bag and Paper Corporation, spent the past few weeks here renewing old acquaintances in the industry. He is now connected with the Taylor Instrument Co., of Rochester, and has recently been placed in charge of sales to the pulp and paper industry in this country and Canada. He left the local concern several years ago and at the time he resigned he was also mayor of the village. In discussing business conditions he stated that he had just returned from a trip to Cornwall, Canada, where great improvement is noted. He pointed out that an industrial boom is being experienced there with all the large plants operating and a large factory under construction. On a recent trip through Maine and New Hampshire he found conditions in the pulp and paper industry slowly but surely improving.

Edward J. Trimbey Gets Patent

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., November 6, 1934—A patent on a method of screening paper pulp by a rotating or centrifugal process has been granted to Edward J. Trimbey, of this city, by the department in Washington. The inventor is identified with the Trimbey Machine Works and has retained the complete interest in the method. A number of featureable claims were allowed in granting the patent.

Census of Pulp Goods and Molded Products

Wage-earner employment in the Pulp Goods and Molded Composition Products industry increased substantially during the first three quarters of 1933 but dropped somewhat in the last quarter, according to a preliminary report compiled from data collected in the Biennial Census of Manufactures taken in 1934, released today by Director William L. Austin, Bureau of the Census, Department of Commerce. The figures for the final months of the several quarters are as follows: March, 4,902; June, 6,341; September, 8,614; December, 8,174. The average number of wage earners for the year increased 20 percent, from 5,654 in 1931 to 6,784 in 1933, but the value of products reported for the industry decreased 6.2 percent, from $27,239,355 in 1931 to $25,548,749 in 1933.

This industry, as classified for census purposes, embraces all establishments engaged primarily in the manufacture of vulcanized fiber and of products pressed or molded from vulcanized fiber, from plastic compositions (phenolic resins and similar plastics), from asphalt compositions, and from pulp.

Statistics for 1933, with comparative figures for 1931, are given in the following tables. All figures for 1933 are preliminary and subject to revision.

TABLE 1.—SUMMARY FOR THE INDUSTRY: 1933 AND 1931

	1933	1931	Percent of increase (+) or decrease (—)
Number of establishments	99	86	*
Wage earners (average for the year)[1]	6,784	5,654	+20.0
Wages[2]	$5,883,363	$6,105,362	— 3.6
Cost of materials, fuel, and purchased electric energy[3]	$9,961,569	$10,804,743	— 7.8
Value of products[4]	$25,548,749	$27,239,355	— 6.2
Value added by manufacture[5]	$15,587,180	$16,434,612	— 5.2

* Percent not computed where base is less than 100.

[1] Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners can not, therefore, be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1933 and those for 1931, the possibility that the proportion of part-time employment was larger in one year than in the other should be taken into account.

[2] Manufacturers' profits or losses can not be calculated from the census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[3] Value of products less cost of materials, fuel, and purchased electric energy.

TABLE 2.—WAGE EARNERS, BY QUARTERS: 1933 AND 1931

(The figure given for the final month of each quarter is the total number on the pay rolls for the week including the fifteenth day of the month, or for some other representative week in the month.)

Year	March	June	Sept.	Dec.
1933	4,902	6,341	8,614	8,174
1931	5,547	5,611	5,989	5,527

Praises Algonquin Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., November 6, 1934—The Alquonquin Paper Mills were declared to be among the best equipped and most efficient factories in Northern New York by Frank E. Gannett, prominent publisher, following an inspection here this week. He also commended the public spirit of Frank A. Augsbury, head of the company, and pointed to his success in the industrial field. The local company is now turning out a large contract for the Gannett publications which will insure steady operations for some time. Mr. Gannett and his party came here from Rochester by airplane and made the trip in brief time.

THE FINEST — ONLY THE FINEST RAW MATERIALS ARE USED IN OUR

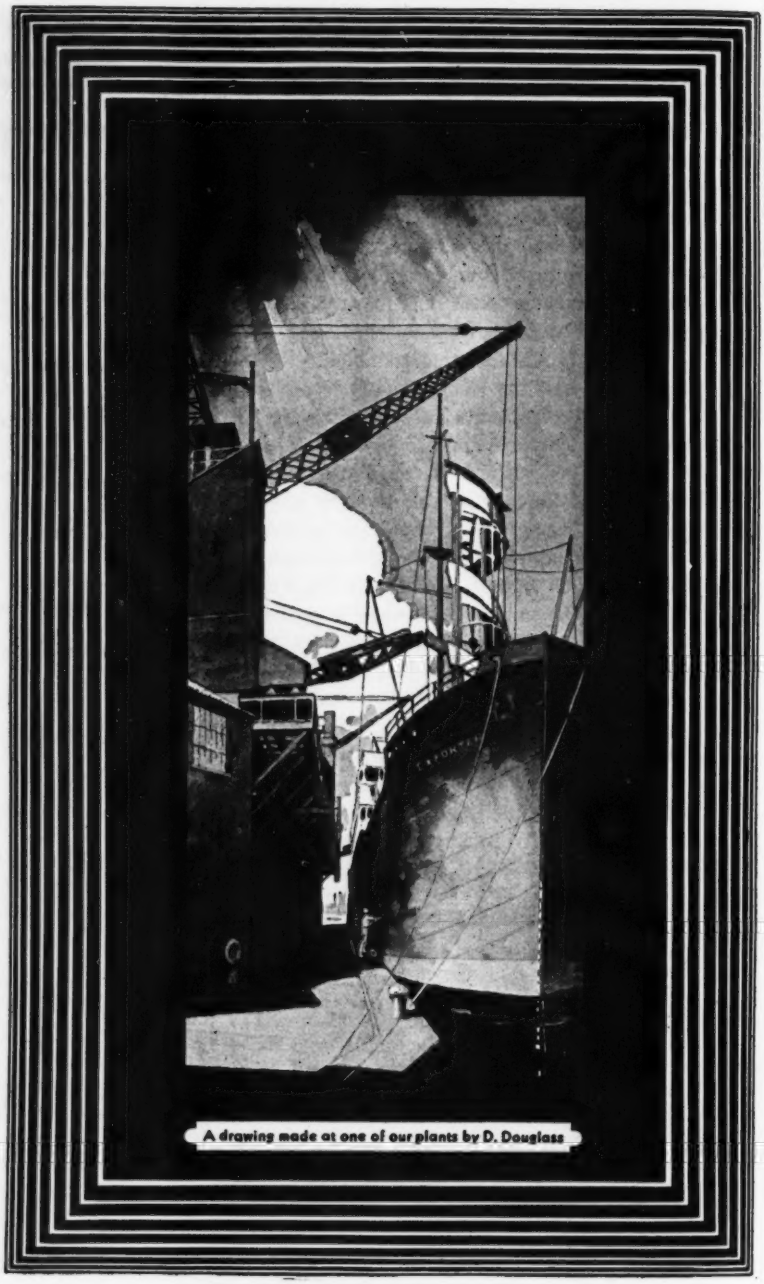
Sulphate

OF ALUMINA

Because we control our own deposits of bauxite in Georgia, Arkansas and South America; and because our Sulphuric Acid is of the highest grade, you can always depend upon the quality of our SULPHATE OF ALUMINA.

Manufacture is carefully and systematically controlled to insure perfect uniformity in strength and chemical composition—plus low iron content. Other high grade products available to paper manufacturers at our conveniently located plants and warehouses are:

Rosin Size, dry and liquid; Alwax Sizes; Waxine Sizes; Casein, domestic and imported; Blanc Fixe; China Clay, coating—filler, all grades; Satin White; Sago Flour; Tapioca Flour; Salt Cake; Acids—Muriatic, Nitric, Sulphuric; Alkalis; Aqua Ammonia; Silicate of Soda.



A drawing made at one of our plants by D. Douglass

AMERICAN CYANAMID & CHEMICAL CORPORATION

30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Beater and Jordan Development*

By B. W. Dean[1]

Beater and Jordan Fillers

When bronze was first used for beater and jordan filling it was selected with the idea of combating the corrosion problem, not with any idea that the particular material selected would have any effect on the product, but it has developed that the characteristics of the metal selected have a very decided effect. For example, bronze tends to wear very smooth and the cut edge of the bar whether beater or jordan, tends to round over on the leading edge and the result is a tackle which is ideal for brushing out but is not so good for cutting or shortening the stock.

Stainless iron on the other hand, has the opposite effect. It tends to remain sharp on the cutting edge and so is best adapted for use where it is desired to shorten the fibers. This material resists abrasion remarkably well, in fact it tends to work-harden on the surface when rubbed against corresponding bars or other material.

Monel Metal occupies a place between the two. This is a natural alloy of copper and nickel and has an even higher resistance to acid attack than the acid resisting bronze. It can be cold rolled to give a degree of hardness comparable with the stainless iron and steel and makes a most excellent filling.

Beating Effect

Coming down to the beater, there are a few general problems in connection with beater design to be considered before describing our latest Multibeater. Let us assume as a typical beater roll one having a diameter of 67 inches, face 54 inches carrying 90 bars and running at 108 r. p. m. This speed gives a surface speed to the roll of approximately 1800 inches per minute, which speed we have determined by experiment to give the maximum results with a minimum expenditure of power. More beating effect will be obtained by running at higher speed but the power consumed runs up out of proportion to the results obtained. Suppose in connection with the above that a plate is used having 20 bars. The measure of the beating capacity of this combination of roll and plate may be determined by multiplying together the number of bars by the revolutions per minute giving 9720 blows of bars per minute on the plate. Each of these roll bars strike each of the 20 bars in the plate resulting in 194,400 blows per minute of bar to bar. Again multiplying this by 54 inches of face gives 10,497,600 inch cuts per minute and this figure is a fair measure of the beating effect. From a study of this calculation it is evident that the beating effect is directly proportional to the face of the roll and to the number of bars in the plate. The diameter of the roll has no effect excepting as it has a bearing on the proportioning of other parts of the beater as will appear later.

It is well known that the wear of the bars in the roll results eventually in lower efficiency of the beater and that the circulation and beating effect falls off very rapidly. It has been assumed that this comes about by reason of the fact that the pockets become smaller as the bars wear down. Suppose, however, we consider the above roll data in connection with the standard size beater tub which it would actually go with. Such a tub would hold about 2000 pounds of stock at 6 per cent and should circulate about 20 feet per minute—making a complete cycle of the tub in about 2½ minutes. On this basis the pocket in the above roll would carry about ¼ inch depth of stock and inasmuch as these pockets when new are from 2½ to 3 inches deep it is evident that the wear of 1 inch or even 1½ inches on the bar should have little effect on the amount of stock carried around the pockets. What really happens is that in the old Hollander type beater the clearance between the tips of the bars and the bed cover before there was any wear amounted to from 1 to 1½ inches increasing from about ¾ inch immediately back of the plate. As the roll wears down in diameter the clearance between the tip of the bars and the bed cover at the back of the plate does not vary much, but the clearance between the tips of the bars and the bed cover at the tangent point about half way up the roll increases very rapidly and this is the cause of the poor circulation. The space between the roll and backfall fills with stock and as the stock between the bars is thrown out by centrifugal force immediately a roll bar clears the last bar on the beater bed plate it is thrown into this mass of dead pulp and its velocity killed. As the roll turns further the stock tries to get back into the pockets and is carried over the top of the roll, thus impairing the rate of circulation.

Multibeater Principle

Now, applying the above principles to our latest design beaters, instead of using one plate we use three, thus multiplying by 3 the beating effect with a given roll and plate. The plate starts at a point immediately under the center line of the spindle and extends up the backfall to

* Presented at the 24th meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry, Philadelphia, Pa., Oct. 23, 1934.

[1] E. D. Jones & Sons, Pittsfield, Mass.

the point where the backfall straightens out and becomes tangent to the face of the roll. This means that there is no pocket in which stock can collect and form a cushion, killing velocity of the stock thrown out of the roll. The result is more rapid circulation and none thrown over the roll in spite of the fact that there is no doctor blade provided. This results in another economy, namely, an increase in beating effect per horsepower input. It takes about the same amount of power to circulate the stock in any given design of beater regardless of the width of the plate. In this case we are multiplying the plate area by three so that for the same amount of power expended in circulation we are getting about three times the beating effect.

To maintain this relation of the roll with the plate we have designed the lighter bar arrangement so that the center line of the roll moves at right angles to the center of the bed plate area. It is also essential when dealing with wide plate areas like this that the roll be mounted so that there may be no lost motion in the connecting links or in the bearings themselves and for that reason the roll has been mounted in spherical roller bearings. These are of the precision type with practically no play in them and the spherical feature takes care of any jump of the roll when lumps of stock pass under and do not result in any binding or cramping of the bearings.

An interesting development of this design and one which we expect to see make great progress in beating in the near future, is the control of the beating process. This problem has been attacked by a number of mills but the underlying principle is about the same in all, namely, to regulate the pressure of the roll on the plate. When the stock is first furnished the roll may be some distance off the plate and still exert considerable pressure on the stock due to the large pieces and wads of stock which pass under the roll. If a constant pressure is maintained between the roll and the plate as these masses of stock are broken down the roll gets closer and closer to the plate and through this control we are doing automatically and efficiently what the beater man does in an inefficient way by gradually lowering his roll down by hand. The result is a great shortening of the beating cycle and greatly reduced consumption of power. The result is accomplished by gearing a small torque motor to the lighter shaft and this torque motor is actuated by an automatic control on the switchboard which is controlled by the power input into the main motor. If this control apparatus, for example, is set to maintain a load of 75 h.p. on the main motor and the stock is reduced so that the power becomes less than 75 h.p. the torque motor is automatically set into motion lowering the roll until the pressure is such that 75 h.p. load is restored.

Design of Modern Jordan

When one considers what is demanded of a jordan, the design of a machine to do this work seems simple. It consists in its essentials of a shell carrying the stationary bars, inside of which revolves the plug. Means for relative adjustment axially of the two members are provided. This adjusting means must be capable of movement in distances measured in thousandths of an inch, and means for maintaining that setting must be available.

The conventional design calls for a shell bolted rigidly to a base, or forming an integral part of it, and a plug running in bearings which may slide back and forth in guides or housings. Right here is a feature which militates against ideal performance. There are three points where wear may take place and, being cumulative, it becomes eventually a serious defect: The lost motion of the bearings in their guides, the wear (both radial and axial) of the shaft in the bearings, and the play in the adjusting mechanism as usually constructed. Of course, the nearly general adoption of anti-friction bearings has done much to reduce the second cause when they have been properly designed and installed.

In the latest Jones design, the relative adjustment of plug and shell is obtained by moving the shell, and this permits of a more satisfactory support for the plug. On a stuff-box-shaped bed are bolted two bearing pedestals, also of box shape, internally ribbed and stiffened, to which are rigidly bolted the roller bearing housings. As the plug is not moved axially, it is unnecessary to provide a telescopic coupling between it and its driving motor, nor for sliding of the motor itself. The shell slides on a pair of ways in the bed, one flat and the other V-shaped, and is held down on these ways by gibs.

The adjusting mechanism is all contained within the box-shaped pedestal base. The only exposed parts being the hand wheel and the adjusting screw, the latter being of stainless steel running in a brass nut. The thrust of this screw is taken by two opposed ball thrust bearings. Their main purpose is to eliminate end play and wear rather than friction. Every moving part here is lubricated from one oil cup. Adjustment once made is positively locked by a pawl dropping into a notch in a disc on the hand wheel shaft. Each notch corresponds to .002 inch movement of the shell.

By splitting the shell and heads in a horizontal plane at the center line of the shaft, the plug may be inspected without renewal, or it may be removed for refilling without removing the roller bearings with housings.

In the opening paragraphs of this paper, reference was made to the use of various kinds of metal for both jordan and beater fillings. We referred also to the effect of the use of a wide bed plate in a beater. Much the same result is obtained by the use of close-spaced bars in shell and plug filling of a jordan. It takes quite a large percentage of the power input into a jordan to set the stock in motion and drive it through. The balance is used to work the stock between the bars. The former is practically independent of the number of bars so the more bars we can get in without obstructing the flow of stock, the more efficient the jordan will be as a refiner. Based on this fact, we have set up new standards of spacing which permit the use of nearly 50 per cent more linear inches of bars than formerly.

Refining Capacity of Jordan

The refining capacity of a jordan may be expressed by the number of inch cuts per revolution, the same as in the case of the beater, except that a modification of the calculation must be made to allow for the taper of the plug and shell, and the resulting fact that there are more cutting edges in the large end than the small end. It works out as follows:

$$\frac{\text{Total linear inches bar in plug}}{\text{Length of Plug}} \times \frac{\text{Total linear inches bar in shell}}{\text{Length of Shell}} = \text{No. inch cuts per revolution of plug}$$

Length of contact of plug and shell

This does not give absolute accuracy, but is near enough for practical purposes in comparing the relative jordaning capacities of two fillings.

This question of filling brings up another moot subject: The best thickness of bar for a given result. Where a maximum of cutting effect is wanted, we suggest the use of ⅛ or 3/16 inch bars, but where brushing out or hydrating effect is desired, we recommend wider bars.

The Antiseptic Value of Zinc and Other Pigments Toward Paper Stocks

By Olga A. Smith[1]

In a preliminary study carried on at the Institute of Paper Chemistry, it was noted that pulps mixed with zinc pigments had not, after one year, developed slime nor had they become discolored or offensive in odor, while pulps mixed with clay or titanium pigments had developed spoilage within a week's time.

Inasmuch as slime trouble is a common problem in many mills, it seemed of interest to determine to what extent zinc pigments, when used as fillers, could be counted on to prevent or retard pulp spoilage. Experiments were, therefore, undertaken to determine the comparative preservative power of zinc, titanium and clay pigments. These experiments extended over a period of ten weeks, which is more than sufficient time for determining any antiseptic value toward paper pulps. In commercial practice, pulp stocks are not ordinarily kept in the stock chest except over the Sunday shutdown and, therefore, a method of preserving these stocks for only a few days is of value. The object of this experiment was to determine not only whether the stocks could be kept from developing slime and discoloration but also the length of time they could be kept.

The first series of tests dealt with six pulp and rag stocks (slush stocks, numbered 1 to 6, inclusive), and corresponding tray white waters from the paper machines, all from local mills to insure commercial mill samples. For the subsequent series, similar additional pulp samples were obtained (numbered 7 to 12, inclusive). A summary of these samples follows:

TABLE I—STOCKS USED FOR SLIME TESTS

No. 1	Groundwood slush stock*
No. 2	100 per cent rag stock (sized)*
No. 3	50 per cent groundwood, 50 per cent unbleached sulphite*
No. 4	Beaten Mitscherlich sulphite pulp*
No. 5	100 per cent unbeaten Mitscherlich sulphite pulp*
No. 6	Beaten magazine stock*
No. 7	Unbleached western sulphite
No. 8	Bleached western sulphite
No. 9	50 per cent sulphite, 50 per cent soda
No. 10	50 per cent unbleached sulphite, 50 per cent groundwood
No. 11	50 per cent bleached sulphite, 50 per cent groundwood
No. 12	100 per cent rag stock

* Six tray white waters obtained from the paper machines of the first six slush stocks.

The pigments used in the experiments were: titanium dioxide, barium base titanium pigment (approximately 25 per cent TiO_2, 75 per cent $BaSO_4$), classed as titanium pigments; a commercial lithopone (approximately 30 per cent ZnS, 70 per cent $BaSO_4$), a high strength zinc sulphide pigment (approximately 50 per cent ZnS, 50 per cent $BaSO_4$), commercial zinc sulphide, spoken of as zinc pigments; and clay. Clay is commonly used as a filler in the production of some papers. The zinc and titanium pigments are used for such grades as bonds, writing, waxed and greaseproof papers. Due to their high refractive indices, high opacity is attained by the use of small amounts of these pigments without accompanying loss of strength which normally occurs when large amounts of ordinary clay and talc fillers are used.

Three series of experiments comprised this study. The first series dealt with the relative antiseptic value of the six above named pigments when mixed with the stocks. The second series determined any added preservative value when zinc salts are used in addition to the pigments. In the second series, soluble zinc salts were produced in the stock by adding either zinc oxide, zinc chloride or zinc sulphate to a stock having a low pH. Each of the zinc salts was mixed separately with each of the six pigments. The third series consisted of a bacteriological study of the growth of spoilage organisms on agar plates with variations in the pH. This series was intended as a check on the results obtained in series 1 and 2.

[1] Instructor in Bacteriology, Lawrence College, Appleton, Wis. Research Assistant, Institute of Paper Chemistry, Appleton, Wis.

Series 1

TABLE II

	Total Number of Jars of Each Pigment	Number of Jars Showing Spoilage				
		No Spoilage	Trace of Spoilage	Slight Spoilage	Considerable Spoilage	Complete Spoilage
SERIES 1:						
Clay	12	3	..	3	5	1
Barium Base TiO_2	12	..	..	1	5	6
Titanium Dioxide	12	1	..	1	5	5
Lithopone (30 per cent ZnS)	12	3	1	5	3	..
High Strength Lithopone	12	3	1	5	3	..
Zing Sulphide	12	3	3	3	3	..
SERIES 2a (Pigments Only):						
Clay	6	1	..	3	2	..
Barium Base TiO_2	6	..	..	1	2	3
Titanium Dioxide	6	..	..	1	2	3
Lithopone (30 per cent ZnS)	6	1	2	2	1	..
High Strength Lithopone	6	1	2	2	1	..
Zinc Sulphide	6	1	2	2	1	..
SERIES 2b (Pigments Plus Zinc Chloride):						
Clay	6	2	..	1	3	..
Barium Base TiO_2	6	..	..	1	3	2
Titanium Dioxide	6	..	..	1	3	2
Lithopone (30 per cent ZnS)	6	2	..	3	1	..
High Strength Lithopone	6	2	..	3	1	..
Zinc Sulphide	6	2	..	3	1	..
SERIES 2c (Pigments Plus Zinc Sulphate):						
Clay	6	1	..	3	1	1
Barium Base TiO_2	6	..	..	..	3	3
Titanium Dioxide	6	..	..	..	3	3
Lithopone (30 per cent ZnS)	6	1	1	3	1	..
High Strength Lithopone	6	1	1	3	1	..
Zinc Sulphide	6	1	3	1	1	..
SERIES 2d (Pigments plus Zinc Oxide):						
Clay	6	3	1	2	..	..
Barium Base TiO_2	6	3	2	1	..	..
Titanium Dioxide	6	3	2	1	..	..
Lithopone (30 per cent ZnS)	6	5	1	..	..	..
High Strength Lithopone	6	5	1	..	..	..
Zinc Sulphide	6	5	1	..	..	..

Stock suspensions of a consistency of not less than 5 nor more than 10 per cent were prepared from stocks numbered 1 to 6, inclusive, and 250 grams of each placed in a Mason jar. The stock suspensions of these jars were thoroughly mixed with 10 per cent of each of the six pigments on the basis of the dry weight of the stock. In the case of the white waters, 250 cc. of each of the white waters was mixed with 1.25 grams of each of the pigments. These jars of pulp and white water mixtures were kept away from direct sunlight and under observation for a period of ten weeks. The jars were loosely capped so as to permit the possible interchange of gases with the atmosphere.

At the end of two weeks' time, stocks numbered 1, 3, 5 and 6 showed spoilage, but the jars containing zinc pigments retarded the spoilage to a greater degree than

clay, titanium dioxide or the barium base titanium pigment.

None of the jars of rag stock No. 2 showed spoilage at the end of the ten weeks, except the one mixed with the barium base titanium pigment. This jar of stock started to turn pink after one month and gradually increased in spoilage. The development of the pink color seemed characteristic of all stocks mixed with the titanium pigments.

In stock No. 4 the zinc pigments and clay proved beneficial in preserving the stock. There was neither development of slime nor discoloration of the pulp. The titanium pigments had little effect in checking spoilage. The white waters of this stock mixed with zinc pigments remained clear, but those mixed with titanium pigments and clay became cloudy due to the growth of organisms and the development of slimy films. Results in the other samples of white waters paralleled those of the corresponding slush stocks in this series. The results of this series are tabulated at the end of this report.

Series 2

It had previously been determined that basic zinc compounds when mixed with an alum solution at a pH of 4.2 produced soluble zinc salts. It was thought possible that a small amount of zinc salts produced in this way might have sufficient germicidal action to prevent spoilage. Fresh stock suspensions were, therefore, mixed with the pigments as in series 1. To these jars of stock suspension, zinc chloride, zinc sulphate and zinc oxide were mixed separately so that thede was obtained a combination of each zinc salt with each pigment. In this way, any additional antiseptic value of any of the combinations could be determined over the pigments used alone in the suspensions.

Six stock suspensions, No. 7 through 12, were used for this series. Twenty-four jars of suspension were prepared from each of the six stocks used. Of the set of twenty-four jars made for each of the stock suspensions, the first six contained the stock plus 10 per cent of each of the six pigments, the second six held the stock plus 10 per cent of the pigments, and in addition one per cent of the zinc chloride based on the amount of pigment used. In the next six, the stock was mixed with 10 per cent of the pigments plus one per cent of zinc sulphate and the last six were made up with the stock, 10 per cent of each of the pigments and one per cent of zinc oxide with sufficient alum to bring the pH to 4.2. This made a total of 144 jars prepared for this series.

In this series, the results of the stocks mixed with the pigments alone were similar to those obtained in series 1, the zinc pigments retarding spoilage to a greater extent than clay or titanium. The characteristic pink color in the stocks mixed with titanium was noticed in this series as in series 1.

Spoilage was almost entirely prevented when the stocks were mixed with zinc oxide and zinc pigments at a pH of 4.2, which is frequently experienced in the sizing of paper stocks. Growth was slightly retarded in the stocks containing titanium pigments in conjunction with zinc oxide. While zinc chloride and zinc sulphate did have some additional antiseptic value when mixed with the stocks and pigments they were not as beneficial as zinc oxide. Tabulated results of this series are found at the end of this report.

Series 3

Inasmuch as the stocks in the previous series at a low pH did not develop spoilage to the extent of those at a high pH, it seemed desirable to determine the specific conditions of pH unfavorable to the development of the organisms causing spoilage. The liquid from badly spoiled groundwood was used as a source of the transfer. Plating was carried on as for standard water analysis. The agar was adjusted to pHs ranging from 4.0 to 8.0 and was changed by means of alum.

It was found that there was abundant growth with large bacterial colonies on all agar plates of pH 6.8 to 7.6. The plates of agar at 8.0 developed slightly smaller colonies but good growth. Agar plates ranging from 6.4 to 4.0 showed a gradual decrease in the number and size of the colonies. The average count of the colonies on agar at 7.2 was 5,000,000 per cc. of stock liquid while the count on plates at 4.0 was 150 per cc. of liquid.

The above results on the control of growth of slime organisms on agar plates by means of variations in the pH support the results in series 2 and when checked against the pH of the spoiled jars in series 1, demonstrate the relation between pH and the control of growth of organisms.

Conclusions

Although zinc pigments did not always entirely prevent the development of slime or the discoloration of the pulp, the retardative effect was much more pronounced with the use of this pigment than with other pigments.

All slush stocks, with one exception, showed spoilage when dosed with either of the titanium pigments. Twenty-five per cent of the stocks mixed with zinc pigments showed no spoilage and an additional 14 per cent showed only a very slight trace.

Stocks at a low pH mixed with zinc pigments and zinc oxide show a decidedly higher antiseptic value than stocks prepared in a similar manner but mixed with clay or the titanium pigments.

The theory has been proposed that barium sulphate might be the effective antiseptic agent in these pigments. These experiments disprove this theory, for commercial zinc sulphide which contains practically no barium sulphate was most efficient in the control of slime. Next in efficiency came the high strength zinc sulphide pigment, followed by the lithopone, whereas the abrium base titanium pigment which contained the most barium sulphate was the least efficient.

The above experiments show definitely that the zinc pigments appreciably slow up the rate of growth of the organisms, causing slime and discoloration of pulp and rag stocks in comparison with clay and titanium. Under mill conditions, stocks do not usually lie in the stock chest except over the Sunday shutdown ho the indications are that the zinc pigments do have value from the standpoint of slime control.

Increasing Production of Paper in Germany

Increasing production of paper in Germany is reported by American Vice Consul Patrick Mallon, Leipzig. In a report made public by the Commerce Department, Mallon points out that the 1933 output was 6 per cent over that of 1932 while production in the first half of the current year was nearly 18 per cent in excess of the corresponding period of 1933.

As German exports of paper have declined since 1932, this increase has been due to greater demand in the domestic market, it is pointed out. The paper manufacturing industry, which is centered in the State of Saxony, is now operating at about 60 per cent of capacity.

The decline in Germany's paper export trade is strikingly indicated in the July foreign sales which amounted to only 6 per cent of production compared with the former normal ratio of about 30 per cent.

The Casting Problems of Stainless Steel*

By Ernest G. Swigert[1]

Abstract

Foundry problems related to the casting of stainless steel are stated. Of these metal shrinkage is one of the most important. Cooperation of the foundryman and the user is recommended and in some cases it may be advantageous to cast the object in parts and weld them together.

With the growing use of stainless steel in the pulp and paper industry an important market for corrosion resisting castings is being developed. Much has been written on the properties and metallurgy of the various commercial analyses but the problems which are peculiar to the foundry both from the metallurgical and the mechanical standpoint are not generally so well understood. It is the purpose of this paper to discuss these problems from the practical rather than the technical viewpoint in the hope that a better understanding will benefit both the manufacturer and the user.

Rolled vs. Cast Articles

To begin with, the basic difference between a rolled and a cast article lies in the crystalline structure of the steel. The ingot from which plate or bars are rolled follows the basic laws of crystallization for that steel and is exactly comparable to a casting of the same steel, but when this same ingot is passed through dozens of rolls to form a plate the individual crystal of the steel has been broken into many smaller crystals. This gives the rolled structure two basic advantages: First, the mechanical refinement of the crystalline structure definitely improves the physical properties of the steel. Considered in its simplest form it means that where one crystal is replaced by ten or twelve, the cleavage planes or lines between the crystals are more broken up, resulting in greater strength, ductility and shock resistance. The second advantage of the rolled structure is that it is free from shrinkage strain and defects such as blow holes.

On the other hand, the casting or ingot structure has two advantages over the rolled structure. In the first place, the metal can be poured into whatever shape is desired; that is, the designer can, within limits, use metal where he needs it and save metal where it is not needed. The second advantage of the casting structure was not generally understood until recently. It was known that castings had a greater resistance to fatigue than forgings or rolled sections but it was not until the development of the microscopic study of steels that the reason became apparent. When steel solidifies the crystals form as true polyhedrons with the planes between the crystals forming a very irregular, broken surface. The breakage of steel, either from shock or fatigue always follows the plane between the crystals. In forming a plate the mechanical rolling of the structure to some extent distorts these polyhedrons and tends to orient them in one direction. In this way the planes between the crystals become more of a straight line, and under repeated stress or shock these lines will ultimately orient themselves to form a cleavage plane, resulting in breakage. With a casting the method of refining the grain is to subject it to heat treatment; that is, by alternately heating and cooling the casting the size of the grain is reduced until it is comparable to that in the rolled structure. The smaller crystals, however, retain their exact shape as true polyhedrons and the planes between them have not been oriented to form lines of weakness. This comparison applies more to the physical characteristics of the steel than to its corrosion resistance but is important nevertheless.

Corrosion Resistance

When we come to the more complex, corrosion resisting alloys we have two added factors. In the first place certain elements, notably molybdenum, greatly increase the resistance of these steels to both over all and intergranular corrosion but make them very difficult to handle in the rolling mill. In castings, however, these elements can be added in sufficient quantities to provide a factor of safety against corrosion, and actually make the castings easier to handle in the foundry.

There is another factor which enters into consideration —or perhaps it would be truer to say another factor which always existed becomes of paramount importance,—this is the character of the amorphous layer or film which lies between the crystals of the steel. Without trying to go into the highly controversial subject of what this film is or how it behaves, we know that in stainless steels it is of the utmost importance. Intergranular corrosion is responsible for most unexpected failures in service and is in turn caused by the precipitation of carbides and impurities to the crystalline grain boundaries. Exactly how this occurs is not capable of proof but it is interesting that castings apparently offer greater resistance to corrosion than plate of the same analysis.

Experiments carried on with nitric and hydrofluoric acids at high temperature showed that a piece of stainless steel plate is attacked before a casting of the same analysis. Two possible explanations suggest themselves: First, the mechanical distortion of the plate due to rolling may in some way have lessened the corrosion resistance of this film, possibly through the distortion of the true polyhedron shapes of the original crystals. Second, and to my mind more probable, the thinner layer of this amorphous film in the rolled structure may make the precipitation of carbides more detrimental. To understand this, visualize a series of 1-foot cubes cemented together by mortar. This would represent the ingot or casting structure. If these were broken into 64 three inch cubes held together by the same amount of mortar you have obviously a much thinner layer of mortar between the cubes. This is exactly what happens when an ingot is rolled into a plate. This is highly theoretical, of course, but no question in metallurgy offers such an interesting field for speculation.

Shrinkage of Castings

So far, the casting would seem to be the answer to any corrosion problem, but it is when we come to translate the theory of the laboratory into the finished casting that we encounter difficulties. In the first place, stainless steel shrinks 5/16 inches per foot or 25 per cent more than ordinary steel. In the second place, it requires a degree of perfection hitherto unknown in the foundry, and in the third place its crystalline structure cannot be controlled by heat treatment as in a normal steel.

The first of these means that the danger of cracks and shrinkage cavities is multiplied. This necessitates great care in design to eliminate rapid changes of section and considerable skill in the foundry to obtain a uniform cool-

* Presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Portland, Ore., Sept. 10 to 13, 1934.

[1] Vice President, Electric Steel Foundry Company, Portland, Ore.

ing and shrinkage of the casting. Also, in stainless steels, there is greater contraction in changing from the liquid to the solid state as well as a more pronounced tendency to "pipe," so that the percentage of gates and risers required is often more than double that of a similar casting in ordinary steel.

Fig. 1 shows the amount of waste metal necessary to produce a sound valve plunger. The dotted line marks the top of the casting but a heavy bulb of metal had to be placed over it to prevent the "pipe" from running into the casting itself. Fig. 2 shows a typical example of the proportion of castings to waste metal. The enlarged section of the riser shows why it is necessary to have such an amount of waste. The salvage value of the waste metal is only a fraction of its cost, so the effect on the price per pound of the casting can be appreciated.

It is not possible for anyone but a foundryman to realize the importance of perfect surface in a stainless steel casting, or how difficult it is to obtain. A minor defect, which would be unnoticed in an ordinary casting, is fatal in stainless steel. The sand mold into which the steel is poured offers every chance of such defect. The type of sand, the moisture content, the porosity and the method of molding, each contributes its hazard, and only experience and painstaking care will prevent severe losses.

Earlier in this paper mention was made of the fact that in a casting, the size of the crystals could be controlled by heat treatment. Unfortunately, in the stainless steels, which are austenitic, this is not the case. Reheating tends to enlarge rather than refine the grain, and the only control which can be exercised is through the pouring temperature. The colder the metal can be poured, the better the crystalline structure, but obviously this is influenced by the metal section and design. Many castings could be greatly improved if this fact were understood by the designer. Fig. 3 shows the crystalline structure of different sections of metal poured at the same temperature. The thinnest section, having cooled most rapidly, shows a dense, fine-grade structure, but the heavier the section the coarser the grain becomes until, in the thickest piece, it would undoubtedly fail in service. While this grain growth is readily apparent in the fracture it could not be seen in the casting itself.

Fig. 4 shows the improvement in grain structure by

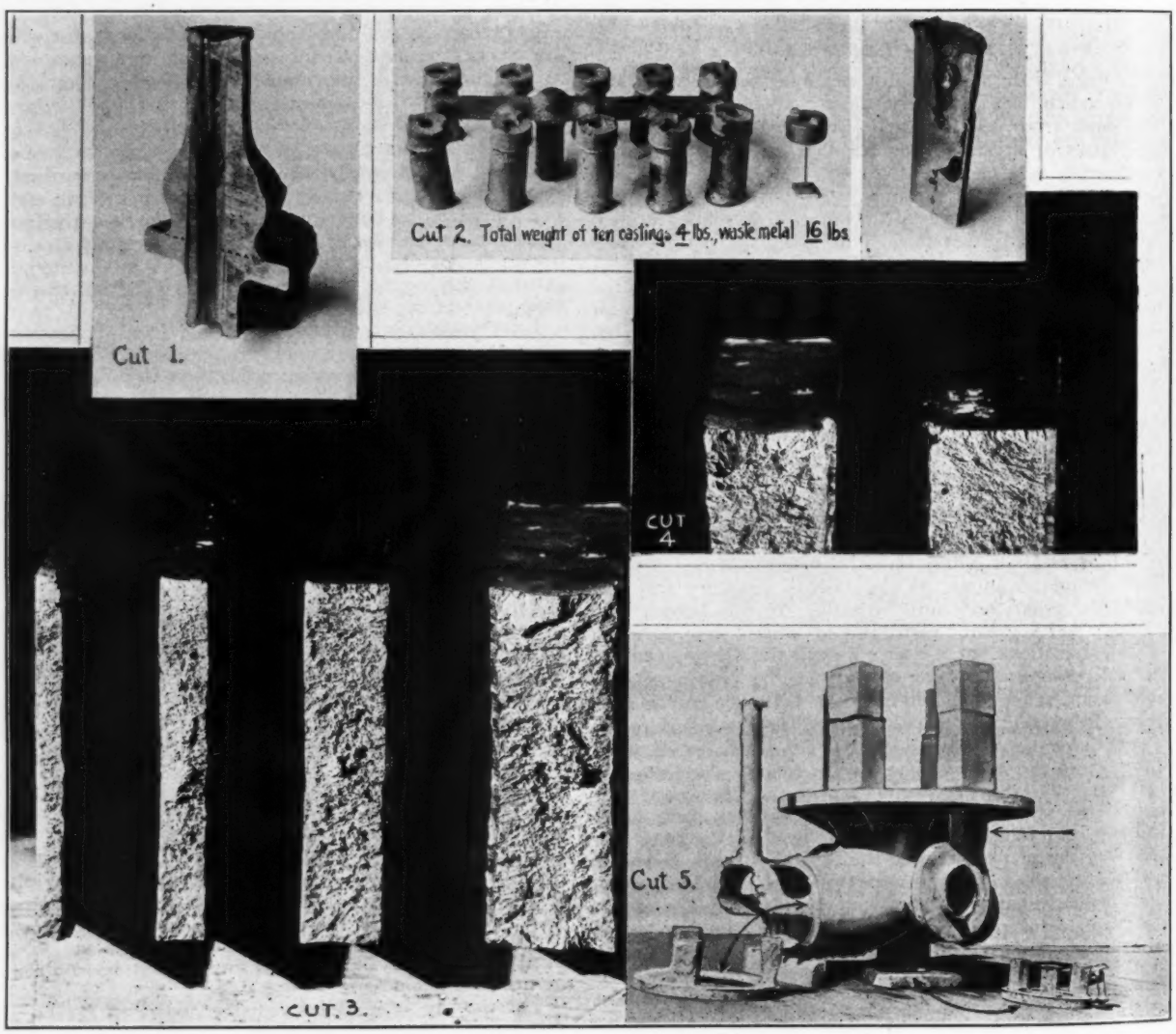


FIG. 1, FIG. 2, FIG. 3, FIG. 4 AND FIG. 5

pouring at a lower temperature, but this metal would be too cold to run properly in the thinner sections shown in Fig. 3. From this it can be seen what care must be exercised with every casting, particularly when heavy and light sections are joined in the same casting. Very intricate designs are poured successfully but they require an exceptional amount of skill and experience.

Recommendations

It is easier of course to point out difficulties than to offer remedies. Certainly the most important step is a closer contact between the designer of the casting and the manufacturer. We have all learned a great deal during the past two or three years and will undoubtedly progress even faster in the future. Many of the methods and practices of a few years ago are obsolete today but it is only when a foundry has the complete confidence of its customers that the advances we have made can be utilized. As an example it is today often possible in stainless steels to design intricate pieces as separate castings and weld them together, making a much cheaper and better unit than if it were cast in one piece. This would have been heresy three years ago, and even now requires very thorough knowledge of the mechanical and metallurgical problems, but it unquestionably offers the solution to many a tough problem of design.

Fig. 5 shows a digester bottom fitting which was greatly improved by following this idea. Two of the flanges could not be fed properly through the casting itself so they were cast separately and welded to the main casting. The inner flanges were fed by a connecting riser drawing its metal from the main riser above. Note also the excessive height of the risers.

As a matter of fact a successful installation is often just as dependent on correct casting design as on the mechanical principles involved.

Perhaps the next most important step is a realization of the part that experience plays in the production of successful stainless steel castings. Operators have learned that conclusive tests on the corrosion resistant qualities of stainless steels require a time element of years rather than months. They have seen parts that looked perfect for a long period later deteriorate rapidly. If a certain analysis and method of manufacture of stainless steel castings has been proven in actual practice operators should hesitate before requesting changes which have not stood the test of time.

Maintenance and Its Relation to the Technical Man*

By William Gibson[1]

To "maintain" is to "keep up," and "technical" is defined in the dictionary as "relating to the mechanical arts, any art or science, or to the mechanical side of any branch of science."

I assume you will all agree that "keeping up" should mean not only maintaining equipment at the original standard of the mill as built, but also "keeping it up" as far as may be possible with progress in the pulp and paper industry.

If that is admitted, then the relationship of the technical man to the maintenance problem is very evident, for if progress is to be made to any material extent, it will only be done thoroughly where the maintenance department makes use of the knowledge and experience of the technical man in their mill and also of the mass of information continually being made available in the trade and technical journals; for in the interchange and combination of ideas, we have one case where two and two added together often make more than four.

It is the writer's opinion that maintenance has been given less attention than it deserves in many mills, and this paper will attempt to show the importance of a high standard of maintenance in regard to quality, quantity and cost of production.

Cost of Maintenance

The true cost of maintenance is probably higher than is generally realized, and it offers a correspondingly greater field for savings; and in order to have a basis for discussion the following figures have been selected as being fairly representative for the average pulp mill.

We will take 75 cents per ton for repairs labor and $1.25 per ton for repairs material; a total of $2.00 per ton, but to this should be added a portion of time and production loss, since the efficiency of the maintenance department may have considerable bearing on the amount of such losses, and in the modern pulp mill, geared as it is today, to almost continuous production, the figure for production loss may be found to equal, if not exceed, the labor and materials item; thus making a very substantial part of total production cost.

Let us examine briefly the directions in which we might work to reduce these costs and taking a trip through the mill see what room there might be for improvement; and here we might take for a standard the saying, "If a thing is right, it should look right."

Even in the most modern mill, you will find matters calling for attention. Bearings leaking oil and grease, steel and iron rusting, wood flumes which encourage slime growth, built with right angles instead of rounded corners and many other actual and potential causes of trouble will be visible, and they certainly do not look right.

Consider that after the mill has been washed up and the system cleaned out you cannot make clean pulp for perhaps eight to twelve hours. Is it not a fact that the only explanation for this is that the system traps dirt and holds it until the washing up releases it? This does not seem reasonable and should be unnecessary.

Operating Instructions

It is very noticeable that when a purchase is in prospect, reams of advertising matter seem to be available, but when the purchase is made it is often difficult to get even elementary operating instructions. Two cases of many might be mentioned. In one, over a year passed before we could obtain information about the operation of a highly specialized piece of equipment, each reply bringing more advertising matter but nothing else.

In another case, the purchase of certain equipment was followed by a form letter from a sales manager, telling us that their interest did not die with the purchase as we

* Presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Portland, Ore., Sept. 10 to 13, 1934.

[1] Chief Engineer, Rainier Pulp and Paper Company, Shelton, Wash.

would have a visit from a service man every twelve or fourteen months; we replied, thanking them, and pointing out that we had similar equipment in service for seven years and had never seen a service man.

It is possible that this condition is more noticeable on the Pacific Coast because we are so far from centers of production, but surely the great development of the industry on the Coast in the last few years should justify a little more attention. The problem, however, remains of keeping up the equipment available.

There can be little doubt that by proper planning and making full use of the remarkable array of materials now available for the specialized needs of the pulp and paper mill, the maintenance department can be made an ever present help to the technical man in his constant effort to improve the quality and quantity of his product, and in most cases the improvement so made can be carried out at no greater cost than the ordinary repair, sometimes even at a saving; to do this, however, means long time planning, for the improvements can only be carried out economically as and when repairs normally come due.

Economy, Lubrication and Labor

In conclusion, three matters of special interest to the writer might be mentioned:

The first is economy. One direction in which savings may be made in most mills is by strict checking of jobs which, in essence, are experimental; we are all liable to be overenthusiastic about our own ideas and while it is very desirable to encourage the inventive man, it is necessary to see that each idea conforms to at least four essentials before any appreciable sum of money is spent on it.

(a) Is it likely to do what is required of it?
(b) Can the idea be improved?
(c) Can similar and tested equipment be brought?
(d) Will the probable benefits justify the cost?

Next take lubrication, often thought of as beginning and ending with bearings, and taken care of by one or two oilers, improper lubrication is probably the greatest single cause of high maintenance cost in the mill.

Bearings fail, machines break down, door hinges break, fire doors stick, bolts have to be burned off, pulleys and gears cannot be taken off shafts without damage, pump packings fail, pump shafts and sleeves have to be renewed, valve packings fail, air guns, hoists, gears and reduction units give trouble and very often the sole cause is failure to get the right amount of the right oil in the right place at the right time.

If you remember that a properly lubricated bearing should not wear at all, and then look at the annual bill of bearing bronze and babbitt metal, it may help to emphasize this point.

The third item is labor. The problem of finding a sufficient number of mechanics qualified to take care of the better grade equipment of the pulp and paper mill is already serious and is becoming more so, and for two apparent reasons:

First, the whole trend of the industry is towards equipment of higher standards of precision and, therefore, requiring a greater degree of skill in the mechanic.

Second, many of the skilled mechanics available today are men who had their training in other countries, and this supply is now virtually cut off.

It takes years, even with good material and a good instructor, to acquire the standards of accuracy and methods necessary for the proper setting up of high-grade machinery, and such machinery improperly set up is a constant source of trouble and expense.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Cellulose and Lignin

Study of the Chemical Composition of Lignin. F. Komarov. J. Applied Chem. (U. S. S. R.) 6:303-309 (1933); C. A. 28:4223.—Numerous known methods for the analytical determination of cellulose in lignin were investigated with the conclusion that none is very accurate. The comparison included the methods of Cross and Bevan (modified by Siebert and Walter) and those of Kürschner and Hoffer on the yields of cellulose, copper numbers (degree of hydrolysis and oxidation of the cellulose), residue of the lignin and pentosan in the cellulose. Attention is also drawn to the difference in the analytical data of the basis analysis and the repeated analyses carried out under closely standardized methods. The experiments were carried out with 10 different samples of larch and coniferous trees. The degree of decomposition (hydrolysis and oxidation) of the cellulose obtained by the methods of Kürschner and Hoffer is considerably higher than the decomposition by the Cross and Bevan method. The residual lignin in the first method is considerably smaller than in the second; however, even in the first case the cellulose contains 5-10% pentosan. The yields of cellulose by the Cross and Bevan method after the subtraction of the pentosan are higher by 4-8% than those by Kürschner and Hoffer's method, a great difference being noticeable particularly in the yields of cellulose from conifers. With respect to check analyses the 2 methods are about equally accurate (0.5-1.2%) under strictly standard conditions. —C. J. W.

The Action of Caustic Soda on Cellulose. S. M. Neale. Silk and Rayon 8, No. 6:225-256, 279; No. 7:306-307, 322 (June, July, 1934).—This is a review of the work at the Shirley Institute on the action of caustic soda on cellulose. The points stressed include the importance of swelling in connection with the solubility of cellulose in alkaline solutions, the chain structure of modified celluloses as indicated by combined alkaline solubility-copper number-viscosity values and the separation of modified cellulose by means of alkaline extraction into different viscosity groups.—C. J. W.

Separation of Components of Lignin. H. Pauly. Ber. 67, No. 7:1177-1199 (July 4, 1934).—The lignin of winter rye straw has been separated into seven components. The procedure was to remove all of the methanol-soluble lignin

in the first group, which was sub-divided by using boiling chloroform. The second group was removed by treatment with cold 1.5 per cent sodium hydroxide and then subdivided with boiling chloroform. The third group was obtained by a hydrolysis treatment of the residue with a solution containing 0.3 per cent sulphuric acid and 85 per cent acetic acid at a temperature of 106° C. This group had phenolic characteristics and was called "lignole." The lignole group was divided into three subdivisions by treatment with benzene, then with chloroform, leaving a third division which was soluble in fatty acids, aldehydes, ketones and alcohols. The lignole content of several native woods, including maple, basswood, white beech, spruce and pine was studied. In conclusion a discussion concerning the mechanism of the addition of iodine to lignin is given and the method for obtaining reproducible results is described.—C. J. W.

Investigation Concerning the Relationship Between the Classification System of Plants and Their Chemical Constitution. P. Klason. Svensk Pappers-Tidn. 37, No. 10:302-306 (May 31, 1934); Svensk Kem. Tid. 46, No. 5:108-117 (May, 1934).—Klason discusses the difference in the lignin of coniferous and cotyledonous plants; according to his opinion, the former is a condensed form of guaiacol aldol and the latter of oxiguaiacol aldol. The content of acetic acid in coniferous plants amounts to only approximately 2 per cent, while in cotyledonous plants it is 4-6 per cent.—C. J. W.

Concerning the Solid Lignin Sulphonic Acid and Dissolving it Out. Carl Kullgren. Papier-Fabr. 32, No. 1:2-6 (Jan. 7, 1934).—A review of previous experiments, clearing up certain misunderstandings and the author's theories on the subject are presented. Of most importance is the fact that the hydrogen ion of the cooking acid possesses no or only a relatively very small direct or catalytic action on the dissolving out of the lignin and that its indirect action in the exchange of cations in the solid ligno sulphonic acid depends on the metal ion content of the cooking acid.—J. F. O.

The Development of Lignin Chemistry. Willibald Ender. Papier-Fabr. 32, No. 26:301-05 (July 1, 1934). —The author first cites the definitions of lignin according to the leading investigators and arrives at the conclusion that as yet there are no pure chemical, botanical or morphological definitions. Lignin is a mixture of homopolymer substances very similar to each other. The difficulties of the preparation of lignin, investigation of lignin preparations, the important groups in lignin and its reactions are discussed. At present the technical possibilties of lignin are small but there seems to be a rich field for such when lignin is more fully understood.—J. F. O.

Concerning the Acetyl and the Methoxyl Content of Spruce Wood. Eric Hagglund and Olle Sandelin. Papier-Fabr. 32, No. 22:253-56, (June 3, 1934).—In spruce wood, one-eighth of the methoxyl is bound to the carbohydrate and the remainder to the lignin. The acetyl of the spruce wood is at least 60 per cent combined to the carbohydrate part.—J. F. O.

Raw Material

Studies on Pulps for Use in Rayon. I. The Pulp Made from Beech Trees. Masuzo Shikata and Isami Tsuchiyama. Artificial Silk Staple Fibre J. Japan 1:3-4 (1933); C. A. 28:4225.—The composition of wood of *Fagus japonica* Maxim. was ash 0.58, alcohol-benzene extract 3.80, alpha-cellulose 45.85, beta-cellulose 4.62, gamma-cellulose 7.67, lignin 18.52, pentosan 21.25, mannan 0, galactan 0.23 and pectin 3.25%. The pulp made from this wood contained 0.86-1.89% ash and 70.1-90.8% α-cellulose.—C. J. W.

Chemical Studies on Woods Produced in Karafuto. Masuzo Shikata. Artificial Silk Staple Fibre J. Japan 2:51-52 (1934); C. A. 28:4225.—The composition of wood of *Larix kamtschatica* Carr. is alcohol-benzene extract 4.24, cold-water extract 17.68, warm-water extract 18.63, one per cent sodium hydroxide extract 28.95, galactan 12.98, mannan 4.59, pentosan 10.72, hemicellulose 28.29, lignin 25, total cellulose 48.26 (alpha 30.54, beta 5.37, gamma 12.35), crude protein 0.43 and ash 0.46%.—C. J. W.

Production of Cellulose from Larch and Cedar. L. P. Zherebov, L. V. Gordon, V. N. Komarovskii and G. A. Kan. Trudui Tzentral Nauch. Issledovatel. Lesokhim. Inst. Narkomlesa U. S. S. R. (Trans. Central Inst. Sci. Research Forest Chem. U. S. S. R.) 2:8-38 (1933); C. A. 28:4226.—The laboratory experiments in pulping Siberian larch and cedar led to the following tentative observations: A yield of 53-54% of kraft cellulose resulted by cooking extracted larch one hour at 160-170° with a 14% liquor (sodium hydroxide and sodium sulphide). A bleachable stock was obtained in 41-42% yield in two hours at 170° with a 25% liquor, in 40-41% yield in one hour with 30% liquor and in 35% yield of a very soft pulp in one hour with 32-35% liquor. Under similar conditions the unextracted larch produced considerably lower yields of pulp. This sulphate pulp is difficultly bleached, consuming 12-18% calcium hypochlorite or 4-6% active chlorine, which can be reduced 33% on heating the pulp with 0.2-0.5% sodium hydroxide for 1.5-2.5 hours and then bleaching in 2 stages with the intermediate washing. Larch treated 2-6 hours at 170° with a mixture of 60% sodium hydroxide, 20% sodium sulphite and 20% sodium sulphide, or 80% sodium hydroxide and 20% sodium sulphite, produced 65% pulp, impossible to bleach. Larch cooked 1.5 hours at 160° with 4-8% sulphur dioxide consumed 3% active chlorine, giving 43% of bleached stock. The results of pulping and testing of mechanical properties of the papers indicate the practicability of using larch for industrial production of paper. Siberian cedar, treated as above, produced 55% of sulphate kraft pulp and 41% of bleached pulp with a higher consumption of chlorine than with larch. Sulphite pulp from cedar can only be obtained by a preliminary extraction with hot water and is considered impractical for industrial milling.—C. J. W.

Utilization of Rot-Damaged Wood of Larch (in the Production of Cellulose). L. P. Zherebov and V. N. Komarovskii. Trudi Tzentral Nauch. Issledovatel Lesokhim. Inst. Narkomlesa U. S. S. R. (Trans. Central Inst. Sci. Research Forest Chem. U. S. S. R.) 2:39-51 (1933); C. A. 28:4226.—From the experimental sulphate pulping of larch damaged by destructive and corrosive rot it is concluded that the injury caused by the corrosive rot has little effect on the yield of unbleached cellulose, that it retards the bleaching process, slightly affects the mechanical properties of unbleached pulp and somewhat more affects the bleached stock.—C. J. W.

Production of Cellulose from Several Cellulose-Bearing Materials After a Preliminary Treatment of the Raw Materials with Nitric Acid. G. A. Korzheniovskii and R. L. Raskina. Trest Khlopkochistitelnoi Prom (Cotton Ind. Trust), Collection of papers No. 1:124-147 (1933); C. A. 28:5227.—The authors present a method of treating cottonseed hulls, cotton plant stems and reeds with nitric acid and subsequently with sodium hydroxide to obtain the cellulose from these materials. The acid treatment dissolves out the other incrusted materials and gives a higher-quality cellulose, as evidenced by the various constants, than the straight alkali, sulphite or sulphate

extraction. The time period for the raw material to be in contact with the acid is less than with the other treatments.—C. J. W.

Production of Paper from Cotton Stems. A. I. Lur'e. Bumazhnaya Prom. 13, No. 3:61-67 (1934); C. A. 28: 5232.—Crushed cotton stems treated with 10% sodium hydroxide (based on oven-dry stems) for 4 hours at 80° under atmospheric pressure resulted in a satisfactory pulp and wrapping paper excessively spotted with parenchymatous fiber. Sodium sulphide and calcium hydroxide under these conditions produced inferior products. The best grades of wrapping paper (free from spots) were obtained with 5% sodium hydroxide by macerating 4 hours in the cold and then cooking 4 hours at 3 atmospheres pressure. Cotton hulls produced very inferior products.—C. J. W.

New Forms of Raw Materials. Mulberry Branches. V. F. Chechulin. Materialui Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Inst.) 1931, No. 4:151-168; C. A. 28:5232.—The industrial production of paper from mulberry branches, chiefly *Morus alba vulgaris*, is discussed from technical and economic viewpoints. A good grade of paper was obtained by pulping and reworking of waste branches from the sericultural industry.—C. J. W.

Waste Oak from Tannin Extraction as a Raw Material for Cellulose-Paper Industry. G. M. Shkondin. Materialui Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 1:186-220; C. A. 28:5232.—Economical and technical aspects of utilizing oak wood and bark waste from tannin extraction in the production of pasteboard, pulp and paper are discussed. Conflicting data from various laboratories on the yields of oak pulp require further study.—C. J. W.

Use of Alder Waste in the Production of Brown Pulp. M. Ya. Robinov. Materialui Vsesoyuznui Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1931, No. 4:96-98; C. A. 28:5232.—Alder chips and waste from veneer cutting, when cooked 8 hours at 4 atmospheres pressure and mixed with spruce pulp or waste paper is suitable for the production of brown wrapping paper.—C. J. W.

Chemical Composition of Spruce Damaged by Red and Blue Rot and the Resulting Sulphite Cellulose. N. I. Nikitin and F. P. Komarov. Priroda i Khozyaistvo Uchebnuikh Lespromkhozov Lesotekh. Akad. (Nature and Economy Exptl. Forest Ind. Sta. Forest-Tech. Acad.) 3:5-14 (1931); C. A. 28:5232.—The close similarity of the results of chemical analysis and sulphite cooking tests of sound spruce (*Picea excelsa*) and that damaged by red rot (*Fusarium*) and blue rot (*Ceratostomella piliferum*) shows that the damaged trees can be successfully used in the production of sulphite pulp.—C. J. W.

Alder and Aspen Shavings from Veneer and Match Factories for Production of Brown Pulp. M. Ya. Robinov. Materialui Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1931, No. 4: 98-103; C. A. 28:5232.—The shavings, steamed 5-8 hours and cooked 30 minutes at 4 atmospheres pressure, produced good grades of yellow wrapping paper with 30% of paper waste and brown wrapping paper with 40% of spruce pulp.—C. J. W.

The Future of Cellulose as a Raw Material. K. Roos. Rayon and Mellil and Textile Monthly 15, No. 7:336-337 (July, 1934).—The article discusses the raw materials which serve as a source for cellulose and mentions briefly the development of "Brotex" in the south of England, as well as the possibilities of bamboo. While there is no immediate danger of a cellulose famine, an appreciable shifting of cellulose production to the tropical countries is to be expected within the near future.—C. J. W.

Study for Determining the Technical Value of the Finnish Peat Fiber for the Manufacture of Paper and Board. H. Kommonen. Finnish Paper and Timber J. 16, No. 6:226-228, 230, 232; No. 10:472, 474, 476-478, 480, 482, 484, 486, 488 (March 31, May 31, 1934).—A very detailed study was made of three Finnish peat fibers to determine their technical value as paper or board making material. Only *Eriophorum vaginatum* was discovered to have good properties; however, it is never found pure in nature but is always mixed with lower grades of peat (10-15% of *Eriophorum*) and its technical value, for the time being at least, therefore seems rather doubtful. Sphagnum moss is much lower in quality and can be considered only as a filler material. The last variety, sedge peat, is of no technical value whatever.—C. J. W.

Hemp Chaff as a Substitute for Rag Halfstuff. B. Millov and E. Soldatova. Bumazhnaya Prom. 12, No. 9: 25-31 (1933); C. A. 28:4227.—Hemp chaff was heated 12 hours at 95° with 15% calcium hydroxide, then 8 hours with sulphate liquor at 95°, next cooked for 10 hours in the same liquor at 3 atmospheres pressure and refined by wet sorting. The product can be used for partial substitution of line half stuff in the production of cigaret paper.—C. J. W.

The Value of Lauan as Pulp Material. Nobuhiko Migita. Cellulose Ind. (Tokyo) 9:338-342 (1933).—The chemical composition of white lauan and its pulping by the soda process are described, and the chemical composition, bleachability and physical properties of lauan pulp are given. Lauan wood is not considered to be suitable for paper, since its fibers are unsuitable and the pulp prepared from them has many defects. On account of its high price, it is hopeless to use lauan pulp as a filler for softwood pulps.—A.P.-C.

The Pulping of Cajeput, White Mangrove, Australian Pine and Cunningham Pine By the Sulphate Process. C. E. Curran, Sidney L. Schwartz and Mark W. Bray. Paper Trade J. 98, No. 23:44-47 (June 7, 1934).—All four species are short fibered and the pulps obtained were inferior to pulps of the same type from the common pulpwood species.—A.P.-C.

Forest Supplies of the Pacific Northwest of Interest to the Pulp and Paper Manufacturer. Thornton T. Munger. Paper Trade J. 98, No. 25, 33-36 (June 21, 1934).—A discussion of the pulpwood supplies of Western Washington and Western Oregon.—A.P.-C.

Industrial Preservation of Crop Fibers. Elbert C. Lathrop and Treadway B. Munroe. Ind. Eng. Chem. 26: 594-598 (June, 1934).—Sugar-cane bagasse can be preserved by piling the bales so that the heat of carbohydrate fermentation is used to raise the temperature of the interior bales to that corresponding to pasteurization (which is retained for about 2 or 3 months), protecting the outside of the pile from rain by a portable roof of steel panels, and sprinkling boric acid on the edges of the outside bales and on the tops of the top bales of the pile.—A.P.-C.

Snyder-MacLaren Deinking Process. Francis H. Snyder and Stanley F. M. MacLaren. Paper Trade J. 98, No. 17:46-47 (April 26, 1934).—Waste papers, either containing or free from groundwood, can be effectively de-

inked by pulping in presence of 5 to 10% high-silica silicate of soda, followed by treatment with about 0.5% of a fatty acid.—A.P.-C.

Method and Apparatus for Removing Printing Ink from Paper. Sidney D. Wells, assignor to Lewis L. Alsted. U. S. pat. 1,962,164 (June 12, 1934).—Waste paper which has been printed with an ink soluble in acid is reduced to pellets or nodules in a rod mill, pulper, or in a combination of a beater and screw press. The nodules, containing a large amount of water relatively to the fiber content, are treated in a diffuser, with an acid (preferably an aqueous solution of sulphur dioxide) and then washed, after which they are transferred to a stuff chest where they are disintegrated by the agitators.—A.P.-C.

The Colloid Chemical Properties of Spruce Wood. Carl G. Schwalbe. Papier-fabr. 32, No. 3:25-30 (Jan. 21, 1934).—The properties of wood as it dries out and takes on moisture again and its effect on electrolytes during these changes.—J. F. O.

Influence of the Properties of the Wood on the Yield of Sulphite and Sulphate Pulp. Wochbl Papierfabr. 65, No. 19:354-55 (May 12, 1934).—A group of technical men made a very thorough investigation of the wood properties as related to the yield and quality of the sulphite and sulphate pulp produced. This article is a summary of their work. The volume weight of wood in which the annual rings does not exceed 3 per centimeter is nearly constant from 0.39 to 0.42. The fiber length averages between 3 and 3.8 mm and the width is about 0.04 mm. The lignin content varies between 25.9 and 29.4, runs about the same in the trunk of a tree but varies from tree to tree. Fast growing trees gave a yield 2 to 3 per cent less for the same degree of cooking. From 4 to 4.5 solid cubic meters of wood is required to give an English ton of 90 per cent sulphite pulp of a Roe number of less than 7, and this figure runs up to as much as 6.7 for fast grown wood of low specific gravity. In sulphate pulp with the same degree of cooking as sulphite pulp, 5 to 10 per cent more wood is required.—J. F. O.

Raw Materials—Non-Fibrous

Sulphur. A. E. Marshall. Paper Ind. 16:255 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Limestone and Lime. O. L. Cook. Paper Ind. 16:248 (July, 1934).—A brief outline of their physical and chemical characteristics.—A.P.-C.

Salt Cake. I. V. Wilson. Paper Ind. 16:250 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Soda Ash and Caustic Soda. Harvey G. Elledge. Paper Ind. 16:252 (July, 1934).—A brief outline of their physical and chemical characteristics.—A.P.-C.

Sodium Chloride. C. D. Looker. Paper Ind. 16:253 (July, 1934).—A brief outline of its physical and chemical characteristics.—A. P.-C.

Chlorine—Gas and Liquid. A. H. Hooker. Paper Ind. 16:246 (July, 1934).—A brief outline of its physical and chemcial characteristics.—A.P.-C.

China Clay. Anon. Paper Ind. 16:247 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Colloidology of Coating Mixes. G. M. Papeterie 56:342-349, 398-402, 454-462 (April 10, 25, May 10, 1934).—A discussion of the importance and effects of the colloidal properties of paper-coating mixes, of their possible defects and methods of overcoming them.—A.P.-C.

Specific Gravity and Yield of Stock from Pulpwoods. Rudolf Sieber. Papier-fabr. 32, No. 9:97-99 (March 4, 1934).—The specific gravity and yield of 100 samples of German pulpwoods are determined. The specific gravity was determined both by measurement and by immersion, the difference being about 2 per cent higher for the immersion method. The specific gravity ranged from 0.331 to 0.549, the mean value being 0.443. The average yield of pulp was 50.9 per cent, one solid cubic meter of wood yielded 225 kilograms of pulp of a Sieber number of 35 to 40. There was only a small difference in yield of pulp from woods of different specific gravities.—J. F. O.

Titanium Pigments in the Paper Industry. Oystein Ravner. Mon. Papeterie Belge 14:171, 173 (March, 1934).—A brief discussion of the properties of titanium pigments and their advantages as a paper filler.—A.P.-C.

Investigation of Viscosity Testing Procedure for Coating Color, and Standardization of Laboratory Viscosimeters. D. S. Dunn and C. G. Landes. Paper Trade J. 98, No. 17:43-46 (April 26, 1934).—Glycerol solutions are found to be satisfactory for the standardization of viscosimeters, and for mill and laboratory practice the metal pipette is satisfactory for determining the viscosity of coating color.—A.P.-C.

Corn Starch. Paul Torre and Lowell Gill. Paper Ind. 16:254 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Silicate of Soda. F. M. Suarez. Paper Ind. 16:251 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Rosin and Rosin Size. R. H. Stevens. Paper Ind. 16:249 (July, 1934).—A brief outline of their physical and chemical characteristics.—A.P.-C.

Paper Makers Alum. John F. Fredriksson. Paper Ind. 16:244 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Casein. Edwin Sutermeister. Paper Ind. 16:245 (July, 1934).—A brief outline of its physical and chemical characteristics.—A.P.-C.

Zinc Sulphide Pigments. Howard M. Cyr. Paper Ind. 16:257 (July, 1934).—A brief outline of their physical and chemical characteristics.—A.P.-C.

Titanium Pigments. William R. Willets. Paper Ind. 16:256 (July, 1934).—A brief outline of their physical and chemical characteristics.—A.P.-C.

Mechanical Process

Grindstone Sharpening and its Effect on Pulp Quality. A. A. Khlebnikov. Materialui Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 2:66-72; Zellstoff u. Papier 14:243-244 (1934); C. A. 28:5235.—The pressure of the burring roll is an important factor in stone sharpening, since the quality of the ground wood pulp obtained from stones sharpened with the same burr at different pressures can vary within wide limits.—C. J. W.

Pulp Stones. Gustav Sundt and Michel Biscayart. Ind. Papeterie 13:119-125 (May, 1934).—A discussion of the merits of Norton stones.—A.P.-C.

Groundwood Pulp for High Speed News. A. W. Simpson. Paper Trade J. 98, No. 26:68-70 (June 28, 1934).—A discussion showing why high-speed newsprint requires a special groundwood pulp, what are the characteristics of this pulp, and how to make it economically.—A.P.-C.

Grindstone. Robert E. Read assignor to International Paper Co. U. S. pat. 1,963,247 (June 19, 1934).—A reinforcing hollow core is provided within the bore of the stone, and means are provided whereby the core gives effectual support to the stone throughout the extent of the bore.—A.P.-C.

Grind Stones for Wood and Keeping Them Clean.

W. Schmid. Papier-Fabr. 32, No. 1:1-2 (Jan. 7, 1934).—The grinding process on the stone is briefly discussed in a practical manner and recent ideas on keeping the grind stone clean are described. A steel brush roll and high pressure water jets are now used to prevent the dead grinding of the wood.—J. F. O.

Cheap De-watering and Storage of Ground Wood. G. v. Holten, Rosenheim, Wochbl Papierfabr. 65, No. 14: 239-40 (April 7, 1934).—The author first discusses the cost and performance of a board machine, then the screw press with its tendency to press the stock into crumbs which are hard to break up, and finally the author describes the Gilg process which is supposed to have many advantages over other methods. This process consists principally of de-watering the stock in the usual manner to 4 to 8 per cent and then pumping it to a large silo which has a perforated bottom and within a week or so the stock has a consistency of over 22 per cent.—J. F. O.

Grinding Rolls According to the "Copy Method." G. Antonoff. Wochbl Papierfabr. 65, No. 15:259 (April 14, 1934).—The great importance of grinding rolls to the desired crown is stressed and then the "copy method" for grinding rolls is explained.—J. F. O.

Device for the Regulation of the Load on Wood Grinders. Sachsenwerk Licht und Kraft Akt. Ges., Dresden. Ger. pat. 597,409 (Sept. 5, 1931).—J. F. O.

Alkaline Processes

Properties of Lime Halfstuff. D. S. Sokolovskii. Bumazhnaya Prom. 13, No. 3:41-49 (1934); C. A. 28: 4901.—Aspen cooked with 2° Be calcium hydroxide for 4 hours at 150° and 5 atmospheres pressure gave 91.5% of halfstuff similar in its properties to that of birch pulp. The birch and aspen halfstuffs bleached exhaustively by various methods produced yellow products. Spruce waste (5% bark and 10% wood), cooked with calcium hydroxide similarly to birch and aspen, produced an inferior halfstuff, while cooking with 17% calcium hydroxide for 12 hours at 150° and 5 atmospheres pressure gave a better product which mixed with 20% sulphite cellulose produced an easily glazed wrapping paper.—C. J. W.

The Effect of Cooking and Bleaching on the Properties of Straw Cellulose. N. A. Rozenberger and P. S. Larin. Materialui Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 1 (5): 3-33; C. A. 28:5233.—The tabulated results of the laboratory and semicommercial-scale experiments show that in the production of paper sulphate straw cellulose can be substituted for wood pulp with results similar to those obtained with monosulphite straw cellulose. The most important factors determining the strength of straw pulp are the conditions of cooking and, even more, of bleaching, which require further study.—C. J. W.

Production of Straw Pulp At Low Pressure. M. P. Resh, A. P. Petrov and V. A. Pinchuk. Bumazhnaya Prom. 12, No. 11:26-29 (1933); C. A. 28:4226.—Rye and wheat straw cooked by the sulphate and sulphate-sulphite process at 4 atmospheres produced a good grade of writing paper.—C. J. W.

Accelerated Cooking of Straw Pulp. M. P. Resh and A. P. Petrov. Bumazhnaya Prom. 12, No. 12:23-30 (1933); C. A. 28:4226.—An easily bleachable pulp was produced by treating rye and wheat straw, or a mixture, with one percent sodium hydroxide at 90-95° for 15-30 minutes and then cooking one hour at 5-6 atmospheres. The reduced time of cooking resulted in a higher grade of cellulose and good grade of writing and other sorts of paper.—C. J. W.

Black Liquors

Is a Rationalization of the Production of Straw Cellulose Actually Needed? V. A. Sazonov. Bymazhnaya Prom. 13, No. 4:39-43 (1934); C. A. 28:4901.—A polemic with Gorbovskii (*Ibid.* 12, No. 4:24-30 (1933); *C. A.* 27, 4073) on the recovery of alkalies from black liquor.—C. J. W.

Liquid Resin ("Tall Oil"). R. Klatt. Fettchem. Umschau 41:90-94 (1934); C. A. 28:4901.—The source, purification and uses of tall oils (byproducts of the sulphate or the sulphite cellulose process) are discussed, with a list of published analyses and tabulation of the constants of two recent tall oil samples. 48 references are given.—C. J. W.

The Quantity of Liquid Rosin Obtained in Sulphate Cellulose Cooking vs. Resinic Acid and Fatty Acid Content of the Wood. Hilding Bergstrom and Karl Cederquist. Iva 1934, No. 2:42-43; C. A. 28:4595.—The wood used to make one ton of 90% cellulose (1970 kg.) contained about 32.5 kg. of resinic and fatty acids by benzene extraction. From the same quantity of wood, 13.5 kg. of resinic and fatty acids were obtained after sulphate cellulose cooking.—C. J. W.

Recovery of Soda from Spent Liquors. B. D. Millidge, E. Taylor and A. A. Heimrod. Paper Trade J. 98, No. 26:57-59 (June 28, 1934).—A description of the layout, construction, operation and performance of the soda-recovery plant at the Cornwall, Ont., mill of Howard Smith Paper Mills, where with three modified Wagner furnaces, a 93% over-all efficiency of soda recovery on a monthly basis is obtained.—A.P.-C.

Recovering Chemical Compounds from the Gases of Soda Melting Furnaces in the Production of Sulphate Pulp. Otto Nordström. U. S. pat. 1,963,862 (June 19, 1934).—The gases are passed through chips impregnated with an alkaline solution or an alkaline solution is injected into the gases which are then passed through the chips.—A.P.-C.

Sulphate Black Liquor Recovery Apparatus. Anton Gustin assignor to Continental Paper and Bag Corp. U. S. pat. 1,961,351 (June 5, 1934).—The smelting furnace is provided with a metal arch and flue, surrounded by a hood forming a jacket through which cooling water is passed so as to cool the gases to a point where they will not deteriorate the arch and flue, but not sufficiently to prevent their being used as a source of heat in the disc evaporator. The hot water is used for washing the pulp in the diffusers.—A.P.-C.

Device on Apparatus for Conveying in Cord or Rope Form, the Precipitated Liquid Rosin as a By-product in the Manufacture of Sulphate Pulp. A. Hellstrom, Kotka, Finland. Swed. pat. 80,278 (Nov. 11, 1930).—The liquid rosin is conveyed by means of a screw, the trough of which is water cooled at the beginning and towards the other end it is air cooled.—J. F. O.

Certain New Construction in the Soda Recovery Plant. H. de Verdier. Svensk Pappers-Tidn. 37, No. 10:307-308, 311-312, 317-318 (May 31, 1934).—A description is given of the de Verdier soda recovery system, which consists of a combination of one rotary, two and eventually more smelting furnaces and a steam boiler. The gas conduit from the rotary to the smelting furnaces is enclosed by a gas-tight chamber containing air of comparatively low temperature. This chamber has a certain cooling effect and prevents the escaping of the gas into the working room. The steam boiler is heated directly from the smelting furnaces without making necessary further handling of the black ash. The system has been installed in two Swedish mills.—C. J. W.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 3, 1934

CIGARETTE PAPER

H. H. Strauss, Sarcoxie, Bordeaux, 216 cs.; American Tobacco Co., Sarcoxie, Bordeaux, 70 cs.; Champagne Paper Corp., Sarcoxie, St. Nazaire, 887 cs.

WALL PAPER

———, Manhattan, Havre, 8 cs.

NEWSPRINT

Jay Madden Corp., Minnequa, Wiborg, 815 rolls; American Newspapers, Inc., Markland, Liverpool, N. S., 403 rolls; N. Y. Tribune, Markland, Liverpool, N. S., 1512 rolls; World Telegram, Markland, Liverpool, N. S., 618 rolls; Bridgeport Herald, Markland, Liverpool, N. S., 57 rolls; Gilman Paper Co., Markland, Liverpool, N. S., 763 rolls; International Paper Co., Cornerbrook, Dalhousie, 8277 rolls; Jay Madden Corp., Scanstates, Wiborg, 611 rolls; Lunham & Reeve, Inc., Scanstates, Wiborg, 297 rolls; H. Reeve Angel & Co., Inc., Scanstates, Wiborg, 76 rolls; Gilman Paper Co., Hallaren, Norrkoeping, 149 rolls; Gilman Paper Co., Hallaren, Kotka, 210 rolls; ———, Stavangerfjord, Oslo, 616 rolls; Perkins Goodwin & Co., Hamburg, Hamburg, 73 rolls.

PRINTING PAPER

International F'd'g Co., Pennland, Antwerp, 4 cs.; Oxalid Corp., Volendam, Rotterdam, 52 cs.; E. Dietzgen & Co., Hamburg, Hamburg, 2 cs.

WRAPPING PAPER

Tarentum Paper Co., Southern Prince, B. Ayres, 143 bls.; Borden Riley Paper Co., Hamburg, Hamburg, 12 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Trader, London, 2 cs.; Devoe & Raynolds Co., American Trader, London, 4 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Trader, London, 4 cs.

SURFACE COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 16 crates; Gevaert Co. of America, Pennland, Antwerp, 57 cs.; Boucher Cork Co., Hamburg, Hamburg, 1 cs.; Globe Shipping Co., Hamburg, Bremen, 18 cs., 15 crates.

METAL COATED PAPER

K. Pauli Co., Gen. von Steuben, Bremen, 69 cs.; K. Pauli Co., Hamburg, Bremen, 30 cs.

DECALCOMANIAS

Sellers Transportation Co., Gen. von Steuben, Bremen, 10 cs.; Sellers Transportation Co., Hamburg, Hamburg, 12 cs.; Phoenix Shipping Co., Hamburg, Hamburg, 1 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Georgic, Liverpool, 19 cs. (duplex), B. F. Drakenfeld & Co., Port Campbell, Liverpool, 5 cs.

TISSUE PAPER

F. C. Strype, Georgic, Liverpool, 3 cs.

STENCIL PAPER

Chas. Happel, Pennland, Antwerp, 4 cs.

WRITING PAPER

Thomas & Pierson, Manhattan, Havre, 1 cs.

ENVELOPES

J. Wanamaker, Hamburg, Hamburg, 5 cs.

WAFER PAPER

Ipex, Volendam, Rotterdam, 12 cs.

STRAW BOARD

American Paper Tube Products Corp., Volendam, Rotterdam, 67 rolls.

MISCELLANEOUS PAPER

National City Bank, Hokuroku Maru, Yokohama, 4 cs.; Keller Dorian Paper Co., Exochorda, Marseilles, 11 cs.; Japan Paper Co., Volendam, Rotterdam, 1 cs.; Keuffel & Esser Co., Manhattan, Hamburg, 41 rolls, 51 cs.; Applebee & Newman, Inc., Tai Shan, Kobe, 2 cs.

RAGS, BAGGINGS, ETC.

E. J. Keller Co., Inc., Sarcoxie, ———, 115 bls. rags; Mitsui & Co., Ltd., Hokuroku Maru, Shanghai, 562 bls. cotton waste; 1st Natl Bank of Boston, Hokuroku Maru, Kobe, 150 bls. cotton waste; ———, Caledonia, Glasgow, 62 bls. bagging; M. Snedeker Corp., Winona County, Belfast, 445 bls. paper stock; G. A. Henshaw & Co., Winona County, Belfast, 110 bls. paper stock; Amtorg Trading Corp., Scanstates, Gdynia, 55 bls. rags; E. J. Keller Co., Inc., Exochorda, ———, 396 bls. rags; J. J. Ryan & Son, Volendam, Rotterdam, 205 bls. cotton waste; Castle & Overton, Inc., Clairton, Dundee, 53 bls. paper stock; ———, Clairton, Manchester, 252 bls. cotton waste; ———, Clairton, Manchester, 39 bls. paper stock; Royal Manfg. Co., Clairton, Manchester, 50 bls. cotton waste; ———, Olympia, Genoa, 51 bls. cotton waste; Darmstadt

Scott & Courtney, Olympia, Genoa, 229 bls. bagging; E. J. Keller Co., Inc., McKeesport, ———, 139 bls. rags.

CHINA CLAY

Whitaker Clark & Daniels, Georgic, Liverpool, 390 bags, 30 tons.

WOOD PULP

M. Sone, Minnequa, Helsingfors, 300 bls. wood pulp, 50 tons; Lagerloef Trading Co., Minnequa, Helsingfors, 390 bls. mechanical pulp, 76 tons; Lagerloef Trading Co., Scanstates, Helsingfors, 798 bls. sulphite, 135 tons; Lagerloef Trading Co., Scanstates, Wiborg, 2496 bls. sulphite, 457 tons; Castle & Overton, Inc., Scanstates, Wiborg, 255 bls. wood pulp, 50 tons; E. J. Keller Co., Inc., Scanstates, ———, 336 bls. wood pulp, 50 tons; N. Y. Trust Co., Volendam, Rotterdam, 270 bls. wood pulp; M. Sone, Manhattan, Hamburg, 330 bls. wood pulp, 52 tons; E. J. Keller Co., Inc., Manhattan, ———, 331 bls. wood pulp, 52 tons; Lagerloef Trading Co., Hallaren, Wiborg, 7082 bls. sulphite; Lagerloef Trading Co., Hallaren, Kotka, 355 bls. sulphate; J. Andersen & Co., Stavangerfjord, Sarpsborg, 150 bls. sulphite; The Borregaard Co., Inc., Stavangerfjord, Sarpsborg, 370 bls. sulphate; Castle & Overton, Inc., Hamburg, Hamburg, 1145 bls. wood pulp, 229 tons; ———, Hamburg, Hamburg, 125 bls. wood pulp, 25 tons; Irving Trust Co., Hamburg, Hamburg, 300 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Minnequa, Wiborg, 38 bls.; Lagerloef Trading Co., Scanstates, Wiborg, 83 bls., 15 tons.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 3, 1934

———, Georgic, Liverpool, 124 bags hide cuttings; American Express Co., Georgic, Liverpool, 3 cs. copying paper; G. F. Malcolm, Inc., Georgic, Liverpool, 6 cs. tissue paper; G. W. Millar & Co., Inc., Winona County, Dublin, 90 bls. paper stock.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 3, 1934

M. Sone, Minnequa, Helsingfors, 150 bls. wood pulp, 25 tons; Lagerloef Trading Co., Minnequa, Helsingfors, 130 bls. mechanical pulp, 26 tons; Lagerloef Trading Co., Minnequa, Wiborg, 167 bls. pulp boards, 25 tons; Johaneson Wales & Sparre, Inc., Minnequa, Gdynia, 204 bls. wood pulp, 30 tons; Gilman Paper Co., Markland, Liverpool, N. S., 2855 rolls newsprint; H. G. Lichtenstein, Sarcoxie, Bordeaux, 88 bls. rags; Castle & Overton, Inc., Sarcoxie, Bordeaux, 220 bls. rags; E. J. Keller Co., Inc., Sarcoxie, ———, 226 bls. rags; J. Lang Co., Sarcoxie, St. Nazaire, 251 bls. rags; Castle & Overton, Inc., Winona County, Glasgow, 92 bls. new cuttings; Gottesman & Co., Inc., Scanstates, Helsingfors, 500 bls. mechanical pulp, 101 tons; Lagerloef Trading Co., Scanstates, Helsingfors, 930 bls. sulphite, 158 tons; Lagerloef Trading Co., Scanstates, Wiborg, 610 bls. sulphite, 111 tons; Castle & Overton, Inc., Scanstates, Wiborg, 144 bls. wood pulp, 24 tons; Paper Manufacturers Co., Scanstates, Wiborg, 236 rolls newsprint; J. W. Hampton Jr. Co., Scanstates, Wiborg, 70 rolls newsprint; Perkins Goodwin & Co., Scanstates, Gdynia, 1600 bls. wood pulp, 245 tons; ———, Hallaren, Wiborg, 5310 bls. sulphate; ———, Hallaren, Wiborg, 1270 bls. sulphite; Lagerloef Trading Co., Hallaren, Wasa, 130 bls. mechanical pulp; ———, Hallaren, Kotka, 1015 bls. sulphite; Bank of N. Y. Trust Co., Wido, Hamburg, 840 bls. sulphite; J. Andersen & Co., Wido, Bremen, 249 bls. sulphite; Price & Pierce, Ltd., Etna, Wallvik, 250 bls. mechanical pulp; Price & Pierce, Ltd., Etna, Wallvik, 600 bls. sulphite; Stora Kopparberg Corp., Etna, Skutskar, 2211 bls. sulphite; Bulkley Dunton & Co., Etna, ———, 125 bls. wood pulp; E. J. Keller Co., Inc., McKeesport, ———, 378 bls. rags; Castle & Overton, Inc., McKeesport, Havre, 49 bls. rags; Darmstadt Scott & Courtney, McKeesport, Havre, 88 bls. rags; Bulkley Dunton & Co., Lagaholm, ———, 1600 bls. wood pulp; E. J. Keller Co., Inc., West Eldara, ———, 828 bls. paper stock.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 3, 1934

Congoleum Nairn Co., Sarcoxie, Bordeaux, 250 bls. rags; ———, Clairton, Manchester, 63 bls. new cuttings; ———, Clairton, Liverpool, 108 coils old rope.

NEWPORT NEWS IMPORTS

WEEK ENDING NOVEMBER 3, 1934

Bulkley Dunton & Co., Lagaholm, ———, 4465 bls. wood pulp.

New Mathieson Alkali Works To Open Soon

The new $7,000,000 plant of The Mathieson Alkali Works at Lake Charles, La., will begin operations early in December. According to officials of The Mathieson Alkali Works, construction work at the new plant is being maintained considerably ahead of schedule, despite the fact that it involves a number of engineering developments embodied in such a plant for the first time.

The Lake Charles plant, it was pointed out, will provide a new source of supply for soda ash, caustic soda and related heavy chemical products over a wide area in the South and Southwest. It will also permit the economical shipment of alkali by water to points on the Atlantic and Pacific seaboards, along the Gulf Coast, and on inland waterways including the Mississippi River and its tributaries.

In addition to rail service via the Southern Pacific, Kansas City Southern or Missouri Pacific and their connections, the plant includes a dock system for loading both barges and ocean-going steamers. These facilities will play an important part in bringing the consumer of alkali and his source of supply closer together from the standpoint of transportation costs.

Since its incorporation in Virginia in 1892 there has been a close relation between The Mathieson Alkali Works and the industrial development in the South. For nearly forty years, the Mathieson plant at Saltville, being the only source of alkali in the South, has saved Southern consumers many thousands of dollars in transportation costs each year. With the completion of the new plant at Lake Charles, similar benefits will be extended to an important growing industrial area in the Southwest. The company also operates a third plant at Niagara Falls, N. Y., where caustic soda, anhydrous ammonia, liquid chlorine and chlorine products are produced.

Lake States Section to Meet

The next meeting of the Lake States Section of TAPPI will be held at the Conway Hotel, November 13, at 6 P. M. The after-dinner program will consist of a paper by Dr. George J. Ritter of the Forest Products Laboratory, Madison, Wis., and a paper by Dr. George C. Munro of the Institute of Paper Chemistry. Dr. Ritter will give an illustrated talk on "Some Structural, Physical and Chemical Properties That Contribute to the Usefulness of Wood in the Manufacture of Paper." Dr. Munro will give a talk on "A Discussion of the General Electric Reflection Meter Used for Determining Brightness of Paper."

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 7, 1934.

Trading in the local paper market was moderately active during the past week. Inquiries are becoming more numerous, however, indicating more lively demand in the near future. Sales forces of the leading paper organizations are conducting a strenuous campaign for orders. Prices generally remain unchanged.

The newsprint paper market is more buoyant, with advertising volume of the leading newspapers running well ahead of last year's figures. Manufacturers in the United States, Canada and Newfoundland are generally agreed that higher prices should prevail next year, due to rising costs of operation and wage increases.

Some improvement transpired in the fine paper market. Book, cover and writing papers are in better request. Tissues are moving in good volume. The coarse paper market is steady. Paper specialties are in persistent demand. The various grades of paper board are displaying more activity than of late.

Mechanical Pulp

Steadiness prevails in the ground wood pulp market. Manufacturing operations in this country and abroad are being maintained in sufficient volume to take care of current requirements. Supplies are moving into consumption at an average pace for the season. The price situation continues unchanged.

Chemical Pulp

The position of the chemical pulp market is practically unaltered. Demand for the various domestic and imported grades is fairly active. Prices are holding to schedule. Bleached sulphite is still quoted at from $2.75 to $2.85 per 100 pounds, on dock, Atlantic, Gulf and West Coast ports, according to divisions.

Old Rope and Bagging

Paper mill interest in the old rope market is more in evidence. Demand for domestic and imported old manila rope is slightly better. Small mixed rope is fairly steady. Prices remain unchanged. The bagging market is moderately active. Gunny bagging and scrap bagging are rather spotty. Roofing bagging is in seasonal request.

Rags

The feature of the domestic rag market is the continued demand for several grades of new cotton rags from abroad, especially for No. 1 white shirt cuttings. In other respects the market here is rather quiet. Roofing grades are fairly steady. The imported rag market is still affected by the foreign exchange situation.

Waste Paper

Conditions in the paper stock market are somewhat fussy. Following the Wall Street demonstration, intended to show the public the plight of the waste paper dealers, considerable opposition has developed against the extension of the minimum price period recently established. Many prominent members of the paper stock industry, however, strongly urge the retention of the present set-up.

Twine

Business in the local twine market is gradually improving, with the approach of the Yuletide holiday season, and demand for the various grades should be brisk from now until the end of the year, at least. Quotations on the various grades of twine are holding to formerly quoted levels and reports of concessions are infrequent.

Paper Men at Reciprocal Trade Meeting

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 7, 1934.—The paper industry was well represented at a hearing held on Monday at the Tariff Commission before the Committee for Reciprocity Information in connection with the proposed trade agreement with Sweden.

Among those appearing were included: S. L. Willson, president of the American Paper and Pulp Association, dealing with paper in general and fine papers especially; Edgar Rickard, Pejepscot Paper Company, on newsprint paper; Robert E. Canfield, Wise, Whitney & Parker, on ground wood; George Stuhr, vice-president of the Continental Paper and Bag Corporation, on sulphite wrapping paper; Marvin H. Preston, of the Thilmany Paper Company and Longview Fiber Company, on kraft paper; and O. M. Porter, of the American Paper and Pulp Association, on pulp. D. T. Lawrence, representing the Trunk Line Association, spoke on pulp.

Working up of the information for the hearing was handled by the Public Affairs Committee of the American Paper and Pulp Association and the Import Committee of the American Paper Industry. Warren B. Bullock, manager of the latter, attended the hearings.

"The American paper industry," said Mr. Wilson, "is vitally concerned in the proposed reciprocal trade agreement with Sweden, for this is the first such trade agreement to be considered which involves a representative foreign paper-producing nation."

Kraftliner Gumming Corp. Starts

The Kraftliner Gumming Corporation, recently organized, has begun the manufacture of gummed sealing tape at Mobile, Ala. The company will manufacture practically every conceivable line of gummed tape. It has advantages of location, of sources of supply, of specially designed equipment and a wide-awake expert personnel.

The company claims also to apply scientific principles in the manufacture of its product. It has instituted a system which will enable it to watch and test every step of the product. A guarantee serial number will be attached to every bundle that leaves the plant.

It promises distributors advantages, assistance, service and cooperation of the highest calibre.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, November 7, 1934.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Contract shipments are moving with regularity. Prices are steady to firm. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly active. Domestic standard ground is quoted at 10 cents and finely ground at 11 cents per pound; while Argentine standard ground is offered at 14 cents and finely ground at 14½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The contract movement is well up to average. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is exhibiting a fairly strong undertone. Prices remain unchanged. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Demand for chlorine is fairly persistent. Shipments against contract are moving freely. Prices remain steady and unchanged. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is steady. Paper making gum rosin is quoted at $4.30 and FF wood rosin at $4.30 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.54 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is quite active. Prices remain unchanged. Salt cake is quoted at from $12 to $14, and chrome salt cake at from $12 to $12.50 per ton, at works. Imported salt cake is selling at from $12 to $12.50 per ton, at works.

SODA ASH.—The soda ash market is displaying strength. Contracts for the forthcoming year are being booked in good volume. Quotations on soda ash, in car lots at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Business in the starch market is fairly good. Demand from the paper mills is satisfactory. Prices remain unchanged. Special paper making starch is selling at $3.47 per 100 pounds, in bags; and at $3.74 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Supplies of sulphate of alumina are moving into consumption in fairly heavy volume. Commercial grades are still quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at work.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton or orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Domestic talc is still selling at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	22.00	@	24.00
Dry	23.00	@	24.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	22.00	@	26.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.70	@	1.80
Kraft No. 2	1.55	@	1.65
(F.o.b. Pulp Mill)			
Kraft Domestic	1.60	@	2.25
(Delivered)			
Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.80	@	.90
Over issue Mag.	.80	@	.90
Solid Flat Book	.65	@	.75
Crumpled No. 1	.60	@	.65
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	.42½	@	.50
No. 1 Mixed Paper	.32½	@	.40

ENGLISH ECCO CLAYS CLAYS

ECCO CLAYS TRADE MARK

Uniform—Superior—Dependable

ENGLISH CHINA CLAYS SALES CORPORATION
551 FIFTH AVENUE, NEW YORK CITY

EVERY WEEK—

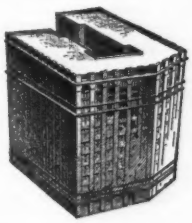
The Paper Trade Journal publishes the happenings of interest in the Pulp and Paper Industry—Covers it completely is saying it a little clearer.

To reach buyers in this field, advertising in these columns can carry your message to many that are interested in your products.

As a member of the Audit Bureau of Circulations our circulation claims are not only authentic but provable.

The Paper Trade Journal
15 West 47th St. New York

"more than an office building"



Location, accessibility, modern equipment, unusual service and tradition have combined to make The Fifth Avenue Building the center of Business Manhattan. Here leaders in many and varied lines of industry have established their sales offices, also lawyers, engineers, architects and the executive offices of many internationally known concerns have selected The Fifth Avenue Building as their New York headquarters.

The new Visitors' Bureau is unique in its service to tenants and buyers alike. It is the only one of its kind in New York. A suite of offices, fully equipped, is at the service of customers of tenants of The Fifth Avenue Building. Conference Rooms for the use of tenants is another exclusive feature provided by the management as part of its service.

Concerns who may be looking for a profitable location for their New York sales offices should investigate the possibilities of The Fifth Avenue Building. When in New York, why not ask us to show you through the building?

An interesting folder, "The Earth's Fifth Corner," will be sent upon your request.

THE FIFTH AVENUE BUILDING
Broadway and Fifth Avenue at Madison Square, New York

J. Andersen & Co.
Selling Agents
21 East 40th Street
New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanaffärden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsviken, Sweden

Bleached Sulphite
KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite
AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

Twines
(F. o. b. Mill)

Coarse Polished—
India ..... .11¼@ .13¾
Belg. White Hemp .12¼@ .15¾
India Compress.... .11¼@ .12¼
Fine Polished—
Fine India ..... .16 @ .20
Special ..... .16 @ .18
B. C. ..... .25½@ .27½
Unpolished—
Box ..... .10 @ .10½
Paper Makers ..... .07 @ .11½
Tube Rope ..... .08 @ .13½
Wall Paper ..... .09 @ .12½
Wrapping ..... .12 @ .17
Special ..... .12 @ —
Soft Fiber Rope .. .10¼@ .10¾

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond ..... .12 @ .50
Water Marked Sulphite Bond ..... .06¾@ .11
Sulphite Bond ..... .05½@ .11
Superfine Writing ... .18 @ .24
No. 1 M. F. Book.. .06½@ .07¼
No. 2 M. F. Book.. .05¼@ .06¼
No. 1 S.&S.C. Book .06¼@ .07¼
No. 2 S.&S.C. Book .05¼@ .06½
Coated Book ..... .07 @ .12
Coated Label ..... .07 @ .08½
No. 1 Manila ..... .04¼@ .05¾
No. 1 Fibre ..... .04¾@ .05¼
No. 2 Manila..... .04¼@ .04¾
Butcher's Manila.... .03¾@ .03¾
No. 1 Kraft ..... 4.75 @ 5.00
Southern Kraft ..... 3.88 @ 4.25
No. 2 Kraft..... 3.88 @ 4.25
Wood Tag Boards... .04¼@ .06¼
Sulphite Screenings.. .03 @ .03¾
Manila Tissue ..... .05¾@ .07
White Tissue ..... .07 @ .09

(Delivered Central Territory)

News, per ton—
Rolls, contract.....41.00 @ —
Sheets, open.....46.00 @51.00
Boards, per ton—
Plain Chip.....46.50 @ —
Solid News.....50.00 @ —
Manila Lined Chip...55.00 @ —
Patent coated.....65.00 @ —
Container Lined—
85 Test, per 1000 sq. ft..... 1.70
100 Test, per 1000 sq. ft..... 1.85

Old Papers
(F. o. b. Chicago)

Shavings—
No. 1 White Envelope cuttings ... 1.70 @ 2.00
No. 1 Hard White. 1.40 @ 1.65
No. 1 Soft White.. 1.25 @ 1.50
Ledger & Writings.. .70 @ .80
Solid Books..... .60 @ .70
Blanks ..... 1.00 @ 1.05
Krafts ..... .80 @ .90
New Kraft Cuts..... 1.20 @ 1.30
Manila Env. Cuts ... 1.25 @ 1.30
Ex. No. 1 Manila... .90 @ 1.00
Print Manila..... .50 @ .55
Overissue News..... .60 @ .70
Old Newspapers—
No. 1 ..... .50 @ .55
Mixed Papers—
No. 1 ..... .30 @ .35
Roofing Stocks—
No. 1.....30.00 @ —
No. 2.....28.00 @ —

PHILADELPHIA

Paper
(Delivered Philadelphia)

Bonds ..... .05-9/10@ .38
Ledgers ..... .06 9/10@ .40
Writings—
Fine No. 3 ..... .05 @ .06
Superfine ..... .10 @ .18
Extra Fine ..... .15 @ .24
Fine ..... .15 @ .24
Fine, No. 2 ..... .10 @ .25
Book, M. F. ..... .05¼@ .06¾
Book, S. S. & C. ... .05 @ .07½
Book, Coated ..... .06½@ .09
Coated Lithograph .. .06¾@ .08½
Label ..... .07 @ .11
No. 1 Jute Manila .. 6.25 @ —
Manila Sul., No. 1 .. 5.25 @ —
Manila No. 2 ..... 3.00 @ —
No. 1 Kraft ..... 5.00 @ —
Southern Kraft ..... 4.75 @ —
Common Bogus..... .03 @ .04½
News Print Rolls....46.00 @55.00
Straw Board.....40.00 @45.00
News Board.....50.00 @ —
Chip Board.....45.00 @ —
Wood Pulp Board...70.00 @85.00
Binder Boards—
No. 1, per ton.....75.00 @80.00
No. 2, per ton.....70.00 @75.00
Carload lots.....65.00 @70.00
Tarred Felts—
Regular .....52.25 @54.25
Slaters (per roll).. .84 @ .94
Best Tarred, 1-ply (per roll)..... 1.95 @ 2.10
Best Tarred, 2-ply (per roll)..... 1.50 @ 1.65
Best Tarred, 3-ply... 2.00 @ 2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—
New White, No. 1. .03½@ .04
New White, No. 2. .02½@ .04
Light Silesias..... .02½@ .03
Silesias, No. 1.... .03 @ .03½
Black Silesias, soft. .02½@ .03
New Unbleached.. .05 @ .05½
Washable, No. 1.. .01½@ .02
Blue Overall ..... .03½@ .04
Cottons—According to grades—
Washable, No. 2.. .02½@ .03
New Blue..... .01½@ .03
Fancy ..... .01½@ .03
New Black Soft... .02 @ .04
New Light Seconds .01½@ .02
New Dark Seconds 1.50 @ 1.75
Khaki Cuttings—
No. 1 O.D..... .03 @ .04
No. 2 Mixed..... .03 @ .04
Corduroy ..... .02 @ .03
New Canvas..... .03½@ .04½
New Black Mixed. .02½@ .03½

Domestic Rags (Old)
White No. 1—
Repacked ..... 2.50 @ 3.50
Miscellaneous ..... 1.75 @ 2.25
M. G. ..... 3.00 @ 3.75
Thirds and Blues—
Miscellaneous ..... 1.00 @ 1.50
Repacked ..... 1.50 @ 2.00
Black Stockings (Export) ..... 2.00 @ 3.50
Roofing Stock—
Foreign No. 1..... .50 @ .75
Repacked ..... .70 @ .85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—
Foreign ..... 1.25 @ 1.50
Domestic ..... 1.50 @ 1.75
Manila Rope..... 2.00 @ 2.25
Sisal Rope ..... 1.25 @ 1.50
Mixed Rope..... 1.00 @ 1.10
Scrap Burlaps—
No. 1..... 1.25 @ 1.50
No. 2..... .80 @ 1.00
Wool Tares, heavy.. 2.75 @ —
Mixed Strings..... 1.15 @ 1.25
No. 1 New Light Burlap ..... 2.25 @ 2.50
New Burlap Cuttings 2.00 @ 2.25

Old Papers
(F. o. b. Phila.)

Shavings—
No. 1 Hard White. 2.25 @ 2.30
No. 2 Hard White. 1.90 @ 2.00
No. 1 Soft White.. 1.80 @ 1.85
No. 2 Soft White.. 1.25 @ 1.30
No. 1 Mixed..... — @ .75
Solid Ledger Stock.. 1.50 @ 1.60
Writing Paper..... 1.10 @ 1.20
No. 1 Books, heavy.. .65 @ .70
No. 1 New Manila.. 1.35 @ 1.40
Print Manila ..... .50 @ .60
Container Manila.... .45 @ .50
Old Kraft ..... 1.15 @ 1.20
No. 1 Mixed Paper.. .32½@ —
Straw Board Chip... .30 @ —
Binders Board Chip. .30 @ —
Corrugated Board... .50 @ —
Overissue News..... .60 @ —
Old Newspapers..... .42½@ —

BOSTON

Paper
(F. o. b. Mill)

Ledgers—
Sulphite ..... .06 @ .12¾
Rag Content ..... .12 @ .30
All Rag ..... .36 @ .52½
Bonds—
Sulphite ..... .07¾@ .11
Rag Content ..... .12 @ .30
All Rag ..... .36 @ .65
Writings ..... .06½@ .20
Superfines ..... .11 @ .31
Book, Super ..... .06 @ .09
Book, M. F. ..... .05½@ .08½
Book, Coated ..... .08½@ .18
Coated Litho ..... .09 @ .12
Label ..... .09½@ .15
Jute Manila No. 1 . .11 @ .13
Manila, Sul. No. 1 . .04¾@ .06½
Manila, Sul. No. 2 . .03¾@ .04½
No. 1 Kraft..... .04¾@ .05
No. 2 Kraft..... .03½@ .04½
(F. o. b. Boston)
Southern Kraft..... .03¾@ .04¾
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)
Common Bogus .... .02 @ .02¾
(Delivered New England points)
News Print, rolls....44.50 @ —
Straw Board, rolls.009 — @35.00
Straw Board in Sheets, basis 35s to 70s ..... — @40.00
Filled News Board..40.00 @45.00
Chip Board .....37.50 @40.00
Chip Board (Creasing) .....37.50 @40.00
Single Manila Lined Chip .....47.50 @52.50
Single White, Patent Coated News Board (Bender) .....57.50 @65.00
Wood Pulp Board ..70.00 @75.00
Binder Boards (Standard Grade).....67.00 @75.00

Old Papers
(F. o. b. Boston)

Shavings—
No. 1 Hard White. 2.00 @ 2.25
No. 1 Soft White.. 1.75 @ 2.00
No. 2 Mixed..... .80 @ .85
Solid Ledger Books.. 1.75 @ —
Overissue Ledger Stock ..... 1.15 @ 1.30
Mixed Ledgers ..... .95 @ 1.05
No. 1 Books, heavy.. .85 @ .90
No. 1 Books, light... .65 @ .75
Crumpled Stitchless Book Stock..... .50 @ .60
Manila Env. Cuttings 1.25 @ 1.30
No. 1 Old Manila... .65 @ .70
White Blank News.. 1.10 @ 1.15
No. 1 Kraft..... 1.05 @ 1.10
Manila ..... .55 @ .60
No. 1 Mixed Papers. .32½@ —
Print Manila ..... .45 @ .50
Overissue News..... .50 @ .55
Old Newspapers..... .42½@ .45
Box Board Chips... .. @ .25
Corrugated Boxes .. .32½@ .40
Screening Wrappers . .50 @ .60

Bagging
(F. o. b. Boston)

Manila Rope—
Foreign ..... — @ 1.75
Domestic ..... 1.90 @ 2.00
Transmission Rope.. .90 @ 1.00
Mixed Strings ..... .30 @ .37½
Jute Rope ..... 1.35 @ 1.40
Jute Carpet Threads .65 @ .70
Gunny No. 1—
Foreign ..... 1.50 @ 1.60
Domestic ..... 1.15 @ 1.20
Bleachery Burlap.... 4.00 @ 4.50
Scrap Burlap ..... 1.05 @ 1.10
Scrap Sisal ..... 1.00 @ 1.10
Scrap Sisal for Shredding ..... 1.10 @ 1.25
Wool Tares, heavy . 1.25 @ 1.30
New Burlap Cuttings 1.45 @ 1.50
Australian Wool Pouches ..... 2.00 @ 2.25
Heavy Baling Bagging ..... 1.40 @ 1.50
Paper Mill Bagging.. .90 @ 1.10
Bagging No. 2 ..... .50 @ .55

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—
New Light Prints .01¾@ .02
New White No. 1. .05½@ .06
New White No. 2. .03½@ .04
Silesias No. 1..... .04 @ —
New Black Silesias .02½@ .03
New Unbleached.. .05½@ .06
Blue Cheviot .... — @ 4.65
Fancy ..... — @ .02½
Washable ..... .02¾@ —
Cottons—According to grades—
Blue Overalls ..... — @ .03¾
New Black, soft..... .04 @ .04½
Khaki Cuttings..... .03 @ .03¾
O. D. Khaki ..... .02¾@ .03
Corduroy ..... .01¾@ .02
New Canvas..... — @ .05
B.V.D. Cuttings..... — @ .06¾

Domestic Rags (Old)
(F. o. b. Boston)

Canvas ..... .04½@ —
White No. 1—
Repacked ..... — @ 3.00
Miscellaneous ..... 2.50 @ 2.75
White No. 2—
Repacked ..... 2.00 @ 2.75
Miscellaneous .... 2.00 @ 2.25
Twos and Blues..... 1.25 @ 1.50
Thirds and Blues
Repacked ..... 2.00 @ 2.75
Miscellaneous .... 2.00 @ 2.25
Black Stockings..... 2.25 @ 2.50
Roofing Stock
No. 1 ..... .70 @ .75
No. 2 ..... .65 @ .70
No. 3 ..... .55 @ .60

Foreign Rags
(F. o. b. Boston)

Dark Cottons ..... .85 @ .95
New White Shirt Cuttings ..... 5.50 @ 6.00
Dutch Blues..... 2.00 @ 2.50
New Checks & Blues 2.50 @ 3.00
Old Fustians ..... 1.55 @ 1.60
Old Linsey Garments 1.25 @ 1.35

TORONTO

Paper
(F. o. b. Mill)

Bond—
No. 1 Sulphite.... .10¾@ —
No. 2 Sulphite.... .08½@ —
No. 1 Colored.... .10¾@ —
No. 2 Colored.... .09 @ .10
Ledgers (sulphite)
Ledgers, No. 1 .... .34½@ —
Ledgers, No. 2 .... .25½@ —
Writing ..... .09 @ .09½
Book—
No. 1 M. F. (Carloads) ..... 6.20 @ —
No. 3 M. F. (Carloads) ..... 5.70 @ —
No. 4 M. F. (carloads) ..... 4.75 @ —
No. 1 S. C. (carloads) ..... 6.65 ½ —
No. 3 S. C. (carloads) ..... 6.20 @ —
No. 4 S. C. (carloads) ..... 5.20 @ —
No. 1 Coated and Litho ..... 12.00 @ —
No. 2 Coated and Litho ..... 10.50 @ —
No. 3 Coated and Litho ..... 9.50 @ —
Coated tinted ..... 14.00 @ —
Wrapping—
Rag Brown..... 4.25 @ —
White Wrap..... 2.22½@ —
"B" Manila ..... 4.75 @ —
No. 1 Manila..... 5.25 @ —
Fiber ..... 5.25 @ —
Kraft. M. F. .... 5.75 @ —
Kraft No. 2..... 5.25 @ —

(F.O.B. Cars Toronto)

News, per ton—
Rolls (contract)...39.50 @ —
Sheets .....44.50 @ —

Pulp
(F. o. b. Mill)

Ground Wood.....18.00 @20.00
Sulphite easy bleaching .....40.00 @ —
Sulphite, news grade.38.00 @ —
Sulphite, bleached....50.00 @55.00
Sulphate .....50.00 @ —

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—
White Env. Cut .. 2.00 @ 2.30
Soft White ..... 1.60 @ 1.90
White Blk. News.. 1.25 @ 1.40
Book and Ledger—
Flat Magazine and Book Stock (old) .90 @ 1.00
Light and Crumpled Book Stock. .80 @ .90
Ledgers and Writings ..... 1.00 @ 1.05
Manilas—
New Manila Cut.. 1.25 @ 1.50
Printed Manilas .. .70 @ .60
Kraft ..... 1.25 @ 1.50
News and Scrap—
Strictly Overissue.. .80 @ —
Strictly Folded ... .60 @ —
No. 1 Mixed Paper.. .50 @ —

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings ..... .06 @ .06¼
Fancy Shirt Cuttings .02¼@ .02½

GEORGE F. HARDY

Consulting Engineer

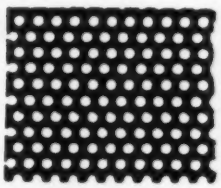
305-309 Broadway, New York City, N. Y.

Member—Am. Soc. C.E.—Am. Soc. M.E.—Eng. Inst. Can.

Consultation	Paper and Pulp Mills
Reports	Hydro-Electric and
Valuations	Steam Power Plants
Estimates	Plans and Specifications

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS

63-65 FAIRMONT AVE. JERSEY CITY, N. J.

Hardy S. Ferguson & Co.

Consulting Engineers

200 Fifth Avenue, New York City

Hardy S. Ferguson.....Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze.....Member A.S.M.E., E.I.C., A.S.C.E.
J. Wallace Tower.....Member A.S.C.E., A.S.M.E.

Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
Dams and other Hydraulic Structures.

UNION SCREEN PLATE COMPANY

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS

Old Plates Reclosed and Re-cut to Accurate Gauge.
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the
UNION-WITHAM SCREEN PLATE VAT AND FASTENER

ALUMINUM SULPHATE

(PAPER MAKERS' ALUM)

THE Standard Purity of this Company's product is maintained in an uncompromising degree, regardless of whether successive deliveries are from one or various of the Company's Works.

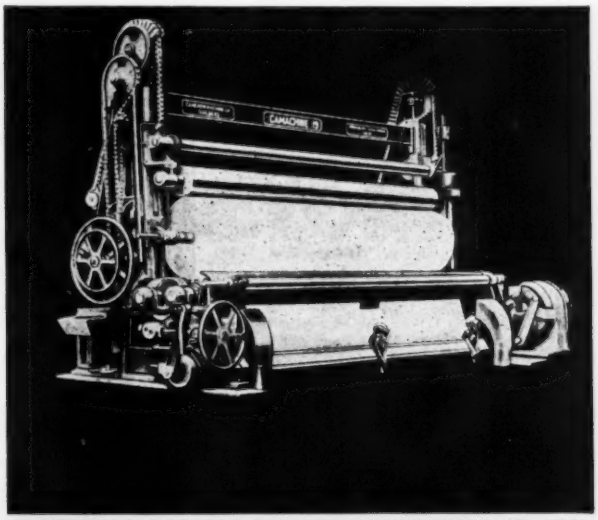
GENERAL CHEMICAL CO.

40 Rector Street, New York, N. Y.

Cable Address: Lyeurgus, N. Y.
Sales Offices: Buffalo, Chicago, Cleveland, Denver, Los Angeles, Philadelphia, Pittsburgh, Providence, San Francisco, St. Louis.
In Canada: The Nichols Chemical Company, Ltd. Montreal—Toronto

REG. U.S. PAT. OFF.

Also BAKER & ADAMSON C.P. ACIDS, REAGENTS and FINE CHEMICALS



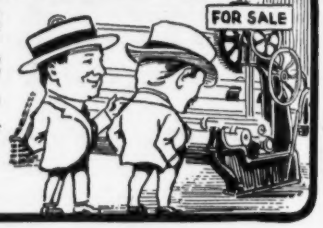
CAMACHINES

FOR PAPER AND BOARD OF ALL KINDS

CAMERON MACHINE COMPANY

61 POPLAR ST. BROOKLYN, N. Y.

The CLEARING HOUSE of THE PAPER TRADE



"SITUATIONS WANTED" ADVERTISEMENTS—4c a word, double rates for heavy face type. Minimum charge $1.00. If repeated ½ rate will be charged for each consecutive repetition.

"HELP WANTED" ADVERTISEMENTS—4c a word. Double rate for heavy face type. Minimum charge $1.00.

CLASSIFIED ADVERTISEMENTS—4c a word. Double rate for heavy face type. Minimum charge $1.00.

All classified "Help Wanted" and "Situation Wanted" advertisements are payable in advance.

HELP WANTED

SALARIED POSITIONS. $2,500 to $25,000. This thoroughly organized advertising service of 24 years' recognized standing and reputation carries on preliminary negotiations for positions of the calibre indicated, through a procedure individualized to each client's personal requirements. Several weeks are required to negotiate and each individual must finance the moderate cost of his own campaign. Retaining fee protected by a refund provision as stipulated in our agreement. Identity is covered and, if employed, present position protected. If you have actually earned over $2,500, send only name and address for details. R. W. Bixby, Inc., 117 Delward Bldg., Buffalo, N. Y.

WANTED—Development Engineer for Engineering Department of Book Paper Mill to prepare and direct designs for plant equipment and process improvements. Man of good fundamental mechanical training, at least 10 years' experience, and under 45 years of age preferred. Supply full record of education, experience and personal information in first letter. Address Box 34-477, care Paper Trade Journal. N-8

IMPORTERS cold water glues and chemically treated starches desires man. Established following large buyers. Manage department. Share profits. No investment. Address Box 34-514, care Paper Trade Journal. N-8

PAPER CHEMIST—Thorough knowledge of paper making and application. Capable of establishing paper specification required for various purposes. Write fully in first letter describing your experience, where acquired and other information. Address Box 34-502, care Paper Trade Journal. N-8

PAPER BUYER—Thorough knowledge of paper and paper boards, sources of supplies and cost. Paper making experience preferred. Write fully in first letter describing your experience, where acquired, other information. Address Box 34-501, care Paper Trade Journal. N-8

ESTABLISHED FIRM in the Metropolitan District of New York selling paper, paper bags, twine, etc., is looking for an energetic young man to take full charge as Sales Manager. Must have executive ability. Give experience in detail. Information will be held in strict confidence. Address Box 34-503, care Paper Trade Journal. N-8

SITUATIONS WANTED

WANTED—Position as head machine man. Thirteen years' experience on fine linens, ledgers, bonds, Fourdrinier Machines. Now employed but desirous of steady work. Married, steady, reliable. Address Box 34-497, care Paper Trade Journal. N-8

SUPERINTENDENT wishes to make change. Energetic, capable and experienced in the manufacture of all grades of Combinations, Tags, Bottle Cap and Wallboards. Especial ability on repairs. Thorough knowledge of Power Plant and good color man. Can furnish best of references. Address Box 34-505, care Paper Trade Journal. N-29

WANTED—Position as plant, development and maintenance engineer with a paper mill or heavy chemical plant, by a middle aged technical graduate having a very broad combination of technical and mechanical experience. Can handle heat balances and design of special machines. Address Box 34-506, care Paper Trade Journal. N-22

SITUATIONS WANTED

WORKING MASTER MECHANIC or millwright machinist. 20 years' experience Pulp and Paper Mills. Cylinder Fourdrinier machines. Excellent references. Address Box 34-481, care Paper Trade Journal. N-15

WAX PAPER SUPERINTENDENT or assistant manager is open for a position with a first class waxing plant, 24 years in business. Address Box 34-480, care Paper Trade Journal. N-8

COATING CHEMIST desires to make new connection with progressive company, preferably in East. Address Box 34-504, care Paper Trade Journal. N-15

WANTED

WANTED—2—Finishing Room Cutters 48" or 54"; 2—Finishing Room Cutters 72" to 100" with or without layboys. Address Box 34-499, care Paper Trade Journal. N-22

WANTED—Several 12, 14 or 16 plate screens. Give report of age, condition, type plates, etc. Address Box 34-486, care Paper Trade Journal. N-15

WANTED—Used Cameron Rewinder Model 9-5 to accommodate rolls trimmed 62" wide, 24" diameter. Will consider other models same make. Address Box 34-485, care Paper Trade Journal. N-8

WANTED—Three Roll Pasting Machines Wanted, about 52 inches wide, fully equipped with several drying drums, must be in perfect condition. Address Box 34-484, care Paper Trade Journal. N-15

WANTED—Used Paper Converting Machine Company Paper Napkin Quarterfolding Machine. Give full particulars. Address Box 34-510, care Paper Trade Journal. N-29

WANTED—Fourdrinier Wet End—Wire about 118" x 72 feet. Suction couch, preferred, with vacuum pump for boxes and couch roll. Do not require press rolls. State price, condition and full details. Address Box 34-511, care Paper Trade Journal. N-8

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 2-4370. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight for fast running machines. tf.

Address Replies

to advertisements appearing under Box Numbers in care of

PAPER TRADE JOURNAL

15 West 47th Street
New York, N. Y.

WANTED

WANTED—Used paper napkin quarterfolding machine; one with embossing attachment preferred. Address Box 34-487, care Paper Trade Journal. N-15

WANTED—One set of Technical Association Papers of TAPPI for 1934, 17th Series. Address Box 34-507, care Paper Trade Journal. N-8

WANTED—A Paper Beater with metal sides. Give complete details and location when quoting. Address Box 34-508, care Paper Trade Journal. N-8

WANTED—90" Super Calender; 100" Sheet Sheet Cutter; Seybold Cutter and Rewinder. Address Box 34-509, care Paper Trade Journal. N-22

WANTED—Good used knife grinder to take knives 100" long. Address Box 34-512, care Paper Trade Journal. N-8

FOR SALE

PAPER COATING MACHINERY—Waxing, Oiling, Gumming, Gluing, Asphalt Duplexing Laboratory Coating and Treating machines. High speed. New improvement. MAYER COATING MACHINES COMPANY, INC., Rochester, N. Y. TF

FOR SALE—Seven nearly new cylinder moulds. Cheney Bigelow's recent construction. 30" diameter, 125" face. Journals finished for roller bearings. Cylinder moulds are covered with #14 backing wire and #60 facing wire. Moulds were used only a short time. Apply Riegel Paper Corp., Milford, N. J. N-22

FOR SALE—One carload Solid Wood Pulp Board in rolls 29¾" wide, about 25" diameter, thickness .055. Board is first class, price $45.00 per ton, F.O.B. St. Louis. Will cut to sheets at $5.00 ton additional. Samples upon request. Orchard Paper Co., St. Louis, Mo. N-15

FOR SALE—3 Biggs Rotary Rag Washing Boilers; 2 Acme Gear Company Wax Sprays, one 61" and one 72" wide, complete with motor, blower, etc.; 15,000 Swedish Drainer Bricks. All of the above can be purchased at a very low price and we would be pleased to furnish further information, prints, etc. to anybody interested in this material. Address Box 34-491, care Paper Trade Journal. N-8

FOR SALE—One New York Revolvating Elevator Co.'s Portable Revolvator, complete and in good condition. Reasonable price. Address Box 34-513, care Paper Trade Journal. N-8

FOR SALE—65" Sheridan "New Model" Paper cutter latest type machine. A-1 condition. Address Box 34-115, care Paper Trade Journal. N-8

FOR SALE

Fourdrinier Paper Machines with wires 107"—97"—90"—88". New Cylinder Paper Machines 90" wide. Hamblet & Moore & White Cutters 36" to 90" wide.

FRANK H. DAVIS COMPANY

175 Richdale Ave. Cambridge, Mass.
TF

De Laval Steam Turbine Company
Trenton, N. J.
Steam Turbines—Catalog D . . Centrifugal Pumps—Catalog B
Centrifugal Blowers and Compressors—Catalog F
Helical Gears—Catalog R . . . Worm Reduction Gears—Catalog R
Screw and Gear Pumps—Catalog L . . Water Wheels—Catalog T
Flexible Couplings—Catalog K Address: Department 68.

TENSILASTIC RUBBER ROLLS
Laboratory Controlled At Every Stage of Processing
AMERICAN WRINGER CO., INC., Woonsocket, R. I.

Appleton Wires are good wires
APPLETON WIRE WORKS INC., APPLETON WIS.

PULP MILL MACH'Y FINISHING ROOM MACH'Y
— FRICTION CLUTCHES —
The MOORE & WHITE Co.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

Appleton Felts Make Good Paper
Appleton Woolen Mills, Appleton, Wisconsin

INTERNATIONAL PULP CO.
NEW YORK CITY
ASBESTINE FILLER
Reg. U. S. Patent Office 90% Retention

Your Card in This Space
Will Bring Results

PERFORATED METAL SCREENS
MADE SPECIALLY FOR PAPER and PULP MILL USE
Copper, bronze, steel or other metals. Heat-treated.
HENDRICK MFG. CO.
60 Dundaff St., Carbondale, Pa.
Offices in Principal Cities

1935 EDITION

59th CONSECUTIVE ANNUAL EDITION

LOCKWOOD'S DIRECTORY

of the

PAPER & ALLIED TRADES

ORDER YOUR COPY NOW

THE MANY CHANGES LISTED IN THE 1934 EDITION MAKE PREVIOUS EDITIONS OBSOLETE. PRICE $7.50 DELIVERED.

Special Traveler's Pocket Edition
bound in a flexible cover, comprising the Paper and Pulp Mills, Coating Mills and the Mill Officials. Price $7.50, including delivery charges. ($7.00 cash with order)

Published by

LOCKWOOD TRADE JOURNAL CO.
15 W. 47th St. NEW YORK, N. Y. U. S. A.

WHERE TO BUY

ABRASIVES
Carborundum Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Norton Co.

ACIDS (Sulphuric)
American Cyanamid & Chem. Corp.
Pennsylvania Salt Co.

ADDING MACHINE ROLLS
Paper Manufacturers Co., inc.

ADHESIVE APPLYING MACHINES
Potdevin Machine Co.
John Waldron Corp.

AGITATORS
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hauser Stander Tank Co.
Moore & White Co.
Valley Iron Works Co.

AIR CONDITIONING EQUIPMENT
Ross Engrg. Corp., J. O.
Thwing Instrument Co.

AIR DRYING MACHINERY
Waldron, John, Corp.

AIR PREHEATING UNITS
Ross Engineering Corp., J. O.

ALLOYS
Chromium Corporation of America
Electro-Alloys Co., The
Illinois Steel Co.
International Nickel Co.
Kropp Forge Co.
Pusey and Jones Corp.

ALUM
American Cyanamid & Chemical Corp.
Paper Makers Chemical Corp.
Pennsylvania Salt Mfg. Co.

AMMONIA
American Cyanamid & Chem. Corp.
Mathieson Alkali Works, Inc.
Pennsylvania Salt Co.

ARCHITECTS AND ENGINEERS
Ferguson, Hardy S.
Hardy, George F.

ARMORING FLOOR
Hendrick Mfg. Co.

ASBESTINE PULP
International Pulp Co.

AUTOMATIC WATER FEEDER
Merritt Engineering & Sales Corp., The

BACKING WIRES
Appleton Wire Works
International Wire Works

BAG MACHINES
Potdevin Machine Co.
Smith & Winchester Mfg. Co.

BALERS
Ohio Cultivator Co.

BARKERS
Carthage Machine Co.
Valley Iron Work Co.

BARS (Beater)
International Nickel Co.

BEARINGS
Chain Belt Co.
Link-Belt Co.
Montague Machine Works
S. K. F. Industries
The Manhattan Rubber Mfg. Co.
Timken Roller Bearing Co.

BEATERS
The Appleton Machine Co.
Dilts Machine Works, Inc.
Jones & Sons Co., E. D.
Shartle Bros. Mch. Co.
Valley Iron Works Co.

BEATER ATTACHMENTS
Bird Machine Company

BEATER BED PLATES
Dayton Globe Iron Works
Dilts Machine Works, Inc.
E. D Jones & Sons Co.
Taylor, Stiles & Co.
Valley Iron Works Co.

BEATER CONTROLS
Thwing Instrument Co.

BEATER ENGINE BARS
Dayton Globe Iron Works
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
Taylor Stiles & Co.
Valley Iron Works Co.

BEATER HOODS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.

BEATER ROLLS
Dayton Globe Iron Works
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.

BEATER STOCK RECORDER
Bristol Co., The
Merritt Engineering & Sales Corp., The

BELTING
Goodrich Rubber Co.
Goodyear Tire & Rubber Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Rhoads Sons, J. E.
U. S. Rubber Co.

BELT LACING
Flexible Steel Lacing Co.

BLEACH EJECTORS
Perkins & Sons, Inc., B. F.

BLEACHING APPARATUS
E. D. Jones & Sons Co.
Moore & White Co.

BLEACHING POWDER
Mathieson Alkali Works, Inc.
Pennsylvania Salt Co.

BLEACHING PROCESS
Electro Bleaching Gas Co.
Pennsylvania Salt Mfg. Co.

BLOW PIPING
Moore & White Co.

BLOW PITS
Hauser Stander Tank Co.
Kalamazoo Tank & Silo Co.

BLOWERS (CENTRIFUGAL)
De Laval Steam Turbine Co.
Ross Engineering Corp., J. O.
Sturtevant Co., B. F.

BOILER PRESERVATIVES
Magnus Chemical Co.

BOTTOMS (Steel & Wood)
Harrington & King Perforating Co.
Hauser Stander Tank Co.
Kalamazoo Tank & Silo Co.

BRASS COLLAPSIBLE SHAFTS
Moore & White Co., The

BREAKER BEATER WATER FEEDER
Merritt Engineering & Sales Corp., The

BUCKETS (elevating)
Chain Belt Co.
Hendrick Mfg. Co.
Link-Belt Co.

BULKERS (Pressure)
B. F. Perkins & Son, Inc.

BUNDLING PRESSES
Paper Converting Machine Co., Inc.
Potdevin Machine Co.

BURSTING TESTERS
E. J. Cady & Co.
B. F. Perkins & Son Co.
Testing Machines, Inc.

CALCIUM HYPOCHLORITE
Mathieson Alkali Works, Inc.
Pennsylvania Salt Mfg. Co.

CALENDERS
Beloit Iron Works
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Moore & White Co.
Norwood Engrg. Co.
Perkins & Son, Inc., B. F.
Smith & Winchester Mfg. Co.
Textile Finishing Mchy. Co.

CALENDER DOCTORS
Ticonderoga Machine Works

CALENDER ROLL GRINDERS
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Smith & Winchester Mfg. Co.
Ticonderoga Machine Works

CALENDER ROLLS
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Perkins & Son, Inc., B. F.
Smith & Winchester Mfg. Co.
Textile Finishing Mchy. Co.
Waldron, Corp., John

CALIPERS (Micrometer Roll)
Cady & Co., E. J.
Farrell-Birmingham Co.
Lobdell Car Wheel Co.

CAMERAS (Photomicrographic)
Bausch & Lamb Optical Co.

CARBON BISULPHIDE
Pennsylvania Salt Co.

CASEIN
American Cyanamid & Chemical Corp.
The Casein Manufacturing Co. of America
Paper Makers Chemical Corp.

CASTINGS
Carthage Machine Co.
Chain Belt Co.
International Nickel Co.
Farrel-Birmingham Co.
Frederick Iron and Steel Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Pusey and Jones Corp.

CASTINGS (Brass, Bronze, Iron)
Smith & Winchester Mfg. Co.

CASTING (Chrome Nickel Alloy)
Lobdell Car Wheel Co.

CASTINGS (Iron)
Chain Belt Co.
Hamblet Machine Co.
Link-Belt Co.

CAUSTIC SODA
American Cyanamid & Chemical Corp.
Mathieson Alkali Works, Inc.
Paper Makers Chemical Corp.
Pennsylvania Salt Mfg. Co.

CELLULOSE BAG MACHINERY
Potdevin Machine Co.

CENTRIFINERS
Bird Machine Company

CENTRIFUGALS
Bird Machine Company

CENTRIFUGAL MACHINERY (Special)
De Laval Steam Turbine Co.

CHAIN DRIVES
Chain Belt Co.
Link-Belt Co.

CHEMICALS
American Cyanamid & Chemical Corp.
Campbell & Co., John
E. I. DuPont de Nemours & Co., Inc.
Electro Bleaching Gas Co.
General Chemical Co.
General Dyestuff Corp
Geigy Co., Inc.
New York Color & Chemical Co., inc.
Paper Makers Chemical Corp.
Williams & Co., C. K.

CHIPPERS
Carthage Machine Co.
Valley Iron Works Co.

CHLORINE
Electro Bleaching Gas Co.
Mathieson Alkali Works, Inc.
Pennsylvania Salt Co.

CHROME PLATE
Chromium Corporation of America

CHUCKS
John Waldron Corp.

CLAY
American Cyanamid & Chemical Corp.
Ashcraft Wilkinson Co.
English China Clays Sales Corporation
Paper Makers Importing Co.
Vanderbilt Co., R. T.

CLEANERS (Wire)
Bird Machine Company

CLEANING MATERIALS
Magnus Chemical Co.

CLUTCHES
Chain Belt Co.
Link-Belt Co.
Moore & White Co.
Pusey and Jones Corp.

CLUTCH PULLEYS
Moore & White Co.

COATING MACHINERY
Moore & White Co.
Potdevin Machine Co.
Waldron Corporation, John

COATING MATERIALS
National Oil Products Co.
Paper Makers Chemical Corp.

COCKS, Lubricated
Crane Company

COGS
Bowsher, N. P., The
Dayton Globe Iron Works

COLLAPSIBLE WINDER SHAFTS
Moore & White Co.

COLORIMETERS
Bausch & Lomb Optical Co.

COLOR ANALYZERS
Thwing Instrument Co.

COLOR MIXING EQUIPMENT
Waldron, John, Corp.

COMBINING MACHINES
Waldron Corp., John

COMPRESSORS (Air)
Allis-Chalmers Mfg. Co.

COMPRESSORS (Centrifugal)
De Laval Steam Turbine Co.

CONDITIONERS (Felt)
Bird Machine Company

CONSISTENCY REGULATOR
Merritt Engineering & Sales Corp., The
Trimbey Machine Works

CONTINUOUS BEATER ATTACHMENTS
E. D. Jones & Sons Co.

CONTINUOUS BEATERS
E. D. Jones & Sons Co.
Valley Iron Works Co.

CONTINUOUS BEATER WATER FEEDER
Merritt Engineering & Sales Corp., The
Trimbey Machine Works.

CONTROLLING INSTRUMENTS
Bristol Co., The
Merritt Engineering & Sales Corp., The
Testing Machines, Inc.
Thwing Instrument Co.

CONTROLS (Electric)
Thwing Instrument Co.

CONVEYOR CHAINS
Chain Belt Co.
Link-Belt Co.

CONVEYORS (Trim)
Link-Belt Co.
Ross Engineering Corp., J. O.

COOKING & RECOVERY PROCESS
Chemipulp Process, Inc.
Ross Engineering Corp., J. O.

CORES (Paper)
Climax Tube Co.
Elixman Paper Co.

CORES (Steel)
Smith & Winchester Mfg. Co.

COTTON CALENDER ROLLER
Perkins & Son, Inc., B. F.
Textile Finishing Mchy. Co.

COUCH ROLLS
American Wringer Co.
Beloit Iron Works
Goodrich Rubber Co., B. F.
Montague Machine Co.
Moore & White Co., The
The Manhattan Rubber Mfg Division of Raybestos-Manhattan, Inc.
Pusey and Jones Corp.

COUPLINGS
Chain Belt Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Waldron Corp., John
Walworth Co.
Westinghouse Electric & Mfg. Co.

CREPING MACHINES
Beloit Iron Works
Paper Converting Machine Co., Inc.
John Waldron Corp.

CYLINDER RAILROAD AND DEVIL DUSTER
Moore & White Co.

CYLINDER DRIVES
Moore & White Co., The

CYLINDER MOULDS
Beloit Iron Works
Carthage Machine Co.

CYLINDER WIRES
Appleton Wire Works
International Wire Works

WHERE TO BUY

DAMPENERS
Perkins & Son, Inc., B. F.
DECKERS
Carthage Machine Co.
Montague Machine Co.
Oliver United Filters Inc.
Valley Iron Works
DEFOAMERS
Campbell & Co., John
National Oil Products Co.
DENSITY REGULATOR
Merritt Engineering & Sales Corp., The
DENSOMETERS
W. & L. E. Gurley
DIE CUTTERS
Appleton Machine Co., The
DIGESTERS
Pusey & Joner Corp.
DOCTORS
Bird Machine Company
DOCTOR BLADES
Goodrich Rubber Co., B. F.
International Nickel Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc
DRIVES
Bird Machine Company
DRIVE STANDS
Beloit Iron Works
Moore & White Co.
Pusey and Jones Corp.
DRIVES (Paper Machinery)
Beloit Iron Works
Chain Belt Co.
Farrel-Birmingham Co.
General Electric Co.
Link-Belt Co.
Pusey & Jones Corp.
DRYING SYSTEMS
Ross Engineering Corp., J. O.
Waldron Corporation, The
DUSTING MACHINERY
Carthage Machine Co.
Jones & Sons Co., E. D.
Moore & White Co.
DYESTUFFS & COLORS
Campbell & Co., John
E. I. DuPont de Nemours & Co.
General Dyestuff Corp.
Heller & Merz
Geigy Co., The
National Aniline & Chemical Co.
New York Color & Chemical Co., Inc.
United Color & Pigment Co.
C. K. Williams & Co.
ELECTRIC EQUIPMENT
Allis-Chalmers Mfg. Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
ELEVATORS
Chain Belt Co.
EMBOSSING CALENDERS
Perkins & Sons, Inc., B. F.
Textile Finishing Machinery
EMBOSSING MACHINES
Hudson Sharp Machine Co.
Paper Converting Machine Co.
John Waldron Corp.
EMBOSSING ROLLS
The Appleton Machine Co.
Hudson Sharp Machine Co.
B. F. Perkins & Son, Inc.
Textile Finishing Mchy. Co.
Waldron Corporation, John
EXHAUST FANS
Propellair, Inc.
EXTRACTORS
Downingtown Manufacturing Co.
Valley Iron Works Co.
EXTRACTORS (Beater)
Bird Machine Company
FANS
E. D. Jones & Sons Co.
B. F. Perkins & Son, Inc
Propellair, Inc.
Ross Engineering Co., J. O.
Sturtevant Co., B. F.
FAN PUMPS
Beloit Iron Works
Carthage Machine Co.
Moore & White Co.
Pusey and Jones Corp.
Valley Iron Works Co.
Smith & Winchester Mfg. Co.
FELT CARRIER ROLLS
American Wringer Co.
Beloit Iron Works
Goodrich Rubber Co., B. F.
Pusey and Jones Corp.
FELT CLEANERS
Magnus Chemical Co.
FELTS AND JACKETS
Appleton Woolen Mills
Bulkley, Dunton & Co.
Draper Bros. Co.
Huyck & Son, E. C.
Knox Woolen Co.
Lockport Felt Co.
Orr Felt & Blanket Co.
Philadelphia Felt Co.
Shuler & Benninghofen
Turner, Halsey Co.
Waterbury Felt Co.
FELT GUIDES
Moore & White Co.
FELT SOAPS
Magnus Chemical Co.
FELT TIGHTENER (Automatic)
Pusey and Jones Corp.
John Waldron Corp.
FILLINGS (Jordan)
International Nickel Co.
FILTERS
Moore & White Co.
Norwood Engrg. Co.
Oliver United Filters Inc.
J. O. Ross Engrg. Corp.
FILTER CLEANERS
Magnus Chemical Co.
FILTER WIRES
Appleton Wire Works
FITTINGS (Pipe)
Crane Company
FLANGES
Crane Company
Walworth Co.
FLAT SCREENS
The Appleton Machine Co.
Beloit Iron Works
Downingtown Mfg. Co.
FLEXIBLE COUPLINGS
Chain Belt Co.
De Laval Steam Turbine Co.
Frederick Iron & Steel Co.
Link-Belt Co.
John Waldron Corp.
FLEXIBLE SLICE
E. D. Jones & Sons Co.
FLEXIBLE STEEL LACING
Flexible Steel Lacing Co.
FLOOR TILE (Non-Slip)
Carborundum Co.
Norton Co.
FLY BARS
Dilts Machine Works, Inc.
Jones & Sons Co., E. D.
FOLDING ENDURANCE TESTERS
Testing Machines, Inc.
FOLDING MACHINES
Hamblet Machine Co.
Hudson Sharp Machine Co.
Paper Converting Machine Co., Inc.
Waldron, John, Corp.
FORGINGS (Drop & Hammer)
Kropp Forge Company
FOURDRINIER WIRES
Appleton Wire Works
International Wire Works
FREENESS RECORDERS
Trimbey Machine Works
FREENESS TESTERS
Testing Machines, Inc.
FRICTION CALENDERS
Perkins & Son, Inc., B. F.
Textile Finishing Mchy. Co.
FRICTION CLUTCHES
Beloit Iron Works
Link-Belt Co.
Moore & White Co
Pusey and Jones Corp.
GATES
Dayton Globe Iron Works
GEARS
Chain Belt Co.
Farrel-Birmingham Co.
Dayton Globe Iron Works
De Laval Steam Turbine Co.
E. D. Jones & Sons Co.
Link-Belt Co.
Moore & White Co.
Sturtevant Co., B. F.
Pusey and Jones Corp.
John Waldron Corp.
GENERATORS
De Laval Steam Turbine Co.
General Electric Co.
GRANITE ROLLS
Beloit Iron Works
Perkins & Sons, Inc., B. F.
Pusey and Jones Corp.
GRATING (Sidewalk)
Hendrick Mfg. Co.
GRINDERS
Carthage Machine Co.
Montague Machine Co.
GRINDING WHEELS
E. C. Atkins & Co.
Carborundum Co.
Norton Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
GUIDES (Automatic Web)
John Waldron Corp.
GUIDES (FELT)
Moore & White Co.
GUMMING AND GLUING MACHINERY
Potdevin Machine Co.
Waldron Corporation, John
GUMMED SEALING TAPE
Paper Manufacturers Co.
GUMMED TAPE TESTERS
Thwing Instrument Co.
HAND CLEANER
Magnus Chemical Co.
HAND CLEANER DISPENSERS
Magnus Chemical Co.
HEATERS (Unit)
J. O. Ross Engrg. Corp.
HEATING AND VENTILATING SYSTEMS
Ross Engineering Corp., J. O.
HIGH DENSITY THICKENERS
Moore & White Co.
HOISTS (ELECTRIC)
General Electric Co.
HYDRAULIC MACHINERY
Farrel-Birmingham Co.
INDICATORS
The Bristol Co.
Testing Machines, Inc.
INTERFOLDING MACHINES
Hudson Sharp Machine Co.
Paper Converting Machine Co., Inc.
John Waldron Corp.
INSTRUMENTS
The Bristol Co.
W. & L. E. Gurley
Testing Machines, Inc.
JORDANS
The Appleton Machine Co.
Jones & Sons Co., E. D.
Smith & Winchester Mfg. Co.
Valley Iron Works
JORDAN FILLINGS
Bahr Bros. Mfg. Co., The
Jones & Sons Co., E. D.
Smith & Winchester Mfg. Co.
Valley Iron Works
KNIVES, ETC.
E. C. Atkins & Co.
Carthage Machine Co.
Dilts Machine Works, Inc.
Hamblet Machine Co.
Taylor, Stiles & Co.
LABELLING MACHINES
Potdevin Machine Co.
LABORATORY EQUIPMENT
E. D. Jones & Sons Co.
Pusey and Jones Corp.
Testing Machines, Inc.
Thwing Instrument Co.
Valley Iron Works.
LATEX
Heveatex Corporation
LATHES
Montague Machine Co.
LAY BOYS
Hamblet Machine Co.
Moore & White Co.
LITHOPONE
United Color & Pigment Co.
LOFT DRYERS
Ross Engineering Corp., J. O.
John Waldron Corp.
LUBRICANTS
Gulf Refining Co.
Port Huron Xylite Co.
Socony-Vacuum Corporation
MACHINE PARTS (Forged)
Kropp Forge Co.
MAGNIFIERS (Pocket)
Bausch & Lomb Optical Co.
METERING & PROPORTIONING SYSTEMS
Trimbey Machine Works
MICRO-PROJECTORS
Bausch & Lomb Optical Co.
MICROSCOPES
Bausch & Lomb Optical Co.
Testing Machines, Inc.
MOTORS
Allis-Chalmers Mfg. Co.
General Electric Co.
MOULDS
Carthage Machine Co.
International Nickel Co.
Montague Machine Co.
NAPKIN FOLDING MACHINE
Hudson Sharp Machine Co.
Paper Converting Machine Co., Inc.
Waldron, John, Corp.
OPACIFYING PIGMENT
New Jersey Zinc Co.
Titanium Pigment Co.
United Color & Pigment Co.
R. T. Vanderbilt Co.
PACKING (Rubber)
B. F. Goodrich Rubber Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
U. S. Rubber Co.
PAPER BAG MACHINERY
Potdevin Machine Co.
Smith & Winchester Mfg. Co.
PAPER BREAK RECORDERS
Thwing Instrument Co.
Westinghouse Electric & Mfg Co.
PAPER CUTTERS
E. C. Atkins & Co.
Hamlet Machine Company
Moore & White Co.
Seybold Machine Co.
Smith & Winchester Mfg. Co.
PAPER MACHINE APRONS
Goodrich Rubber Co., B. F.
PAPER MANUFACTURERS
Hammermill Paper Co.
West Virginia Pulp & Paper Co.
PAPER MACHINE HOODS
Ross Engineering Corp., J. O.
PAPER MACHINE SLICES
Montague Machine Co.
PAPER AND BOARD CUTTERS
Beloit Iron Works
PAPER AND PULP MACHINERY
Beloit Iron Works
Downingtown Manufacturing Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
Pusey & Jones Corp.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
PAPER ROLLS
B. F. Perkins & Son, Inc.
Textile Finishing Mchy Co.
Waldron Corp., John
PAPER SCALES
Testing Machines, Inc.
Thwing Instrument Co.
PAPER STOCK WASHERS
Jones & Sons Co., E. D.
PAPER TESTERS
Perkins & Son, Inc., B. F.
Testing Machines, Inc.
Thwing Instrument Co.
Valley Iron Works Co.
PAPER TUBE MACHINERY
Dietz Machine Works
Langston Co., Samuel M.
PAPER WAXING MACHINERY
Waldron Corp., John

WHERE TO BUY

PASTING MACHINES
Potdevin Machine Co.
John Waldron Corp.

PENESCOPE PENETRATION TESTER
Thwing Instrument Co.

PERFORATING MACHINES
Dietz Machine Works
Waldron, John, Corp.

PERFORATED METAL
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE (Stainless)
Illinois Steel Co.
International Nickel Co.
Mundt & Sons, Charles

PIPING
Crane Company

PLATING, CHROMIUM
Chromium Corp. of America

PLATERS
Perkins & Son, Inc., B. F.

PLAYING CARD MACHINERY
Waldron, John, Corp.

POWER TRANSMISSION EQUIPMENT
Chain Belt Co.
De Laval Steam Turbine Co.
Farrel-Birmingham Co.
Link-Belt Co.

PRECISION INSTRUMENTS
The Bristol Co.
Taylor Instrument Co.
Testing Machines, Inc.
Thwing Instrument Co.

PRESSES (Napkin)
Paper Converting Machine Co.
Waldron Corp., John

PRESS ROLLS
American Wringer Co., Inc.
Beloit Iron Works
Downingtown Manufacturing Co.
Goodrich Rubber Co.
Montague Machine Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Pusey & Jones Corp.
Valley Iron Works Co.

PRESS ROLLS (Granite)
Beloit Iron Works
Perkins & Sons, Inc., B. F.
Pusey and Jones Corp.

PRESSURE BULKER
B. F. Perkins & Son, Inc.

PRINTING MACHINES
Potdevin Machine Co.
Waldron, John, Corp.

PRINTING PRESSES
Hudson Sharp Machine Co.
Potdevin Machine Co.
Paper C onverting Machine Co., Inc.
John Waldron Corp.

PULLEYS
Chain Belt Co.
Link-Belt Co.
Montague Machine Co.

PULMAX DRIVES
Bird Machine Company

PULPERS
B. D. Jones & Sons Co.

PULP MILL EQUIPMENT (Chemical)
Carthage Machine Co.
Chemipulp Process, Inc.

PULPSTONES
Carborundum Co.
Norton Co.

PULP PRESSES
Farrel-Birmingham Co.

PULP SCREENS
E. D. Jones & Sons Co.
Trimbey Machine Works

PULPS (SULPHITE)
Andersen Co., J.
Lagerloef Trading Co.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PULP THICKENERS
Moore & White Co.

PUMP PRIMERS (Steam and Water Jet)
Valley Iron Works Co.

PULP WOOD MACHINERY
Montague Machine Co.

PUMPS (Acid)
Carthage Machine Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Moore & White Co.
Morris Machine Works
Oliver United Filters Inc.
Pusey and Jones Corp.
Valley Iron Works

PUMPS (Centrifugal)
Allis-Chalmers Co.
Pusey and Jones Corp.

PUMPS (Reciprocating)
Morris Machine Works

PUMPS (Rotary Cycloidal)
Morris Machine Works

PUMPS (Stuff)
Allis-Chalmers Co.
Beloit Iron Works
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frederick Iron and Steel Co.
International Nickel Co.
Moore & White Co.
Morris Machine Works
Oliver United Filters Inc.
Pusey and Jones Corp.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

PUMPS (Suction)
Moore & White Co.
Morris Machine Works

PUMPS (Vacuum)
Morris Machine Works

PYROMETERS (Roll)
The Bristol Co.
Thwing Instrument Co.

RAG CUTTERS
Perkins & Son, Inc., B. F.
Taylor Stiles & Co.

REAM COUNTERS
Hamblet Machine Co.

RECORDING INSTRUMENTS
The Bristol Co.
Taylor Instrument Co.
Testing Machines, Inc.
Thwing Instrument Co.

RECORDING TACHOMETERS
The Bristol Co.
General Electric Co.
Pusey & Jones Corp.

RECOVERY SYSTEMS (Soda & Sulphite)
Ross Engineering Corp., J. O.

RECOVERY SYSTEMS (Waste Heat)
Ross Engrg. Corp., J. O.

REELS, (Upright & Revolving)
Beloit Iron Works
De Laval Steam Turbine Co.
Moore & White Co.
Pusey & Jones Corp.

REFINERS (Centrifugal)
Bahr Bros.

REFINING ENGINES
Jones & Son Co., E. D.

REFRACTORIES
Carborundum Co.
Norton Co.

REGULATORS
The Bristol Co.
Merritt Engrg. & Sales Co., Inc.
Trimbey Machine Works

REPAIRS
Dayton Globe Iron Works

REWINDERS
Beloit Iron Works
Cameron Machine Co.
Deitz Machine Works
Hamblet Machine Co.
Langston Co., Samuel M.
Moore & White Co.
Smith & Winchester Mfg. Co.
John Waldron Corp.

ROD MILL
Allis-Chalmers Co.
Mine & Smelter Supply Co.

ROLLS
American Wringer Co.
Goodrich Rubber Co.
Montague Machine Co.
Textile Finishing Machy. Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
John Waldron Corp.

ROLLS (Chilled Iron & Gray Iron)
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

ROLLS (Forged)
Kropp Forge Co.

ROLLS (Rubber or Rubber Covered)
American Wringer Co.
B. F. Goodrich Rubber Co.
Montague Machine Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
United States Rubber Co.

ROLL GRINDERS
Farrel-Birmingham Co.
Lobdell Car Wheel Co.

ROLL SLITTING MACHINES
Cameron Machine Co.
Langston Co., Samuel M.

ROLL STANDS
Cameron Machine Co.
Moore & White Co.

ROLL WINDING MACHINES
Cameron Machine Co.

ROOF PLANKS (Awico-ized)
Processed Lumber Co.

ROSIN SIZE
American Cyanamid & Chemical Corp.
Bennett, Inc.
Paper Makers Chemical Co.

ROTARY SCREENS
E. D. Jones & Sons Co.
Moore & White Co.
Valley Iron Works

RUBBER GOODS
American Wringer Co.
Goodyear Tire & Rubber Co.
B. F. Goodrich Rubber Co.
The Manhattan Rubber Mfg. Co.
United States Rubber Co.

RUBBER HOSE
B. F. Goodrich Rubber Co.
Goodyear Tire & Rubber Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
United States Rubber Co.

SALT
Pennsylvania Salt Co.

SAND & POLISHING MACHINES
Carborundum Co.
Waldron, John, Corp.

SATURATING MACHINES
Moore & White Co.
Potdevin Machine Co.
Waldron, John, Corp.

SAVEALLS
Bird Machine Company
Carthage Machine Co.
De Laval Steam Turbine Co.
Moore & White Co.
Oliver United Filters Inc.

SAWS
E. C. Atkins & Co.

SCALES
Cady & Co., E. J.

SCORE TESTERS
Thwing Instrument Co.

SCREEN DIAPHRAGMS
Goodrich Rubber Co., B. F.

SCREENS
Appleton Wire Works
Beloit Iron Works
Bird Machine Company
Carthage Machine Co.
Chain Belt Co.
International Wire Works
E. D. Jones & Sons Co.
Link-Belt Co.
Montague Machine Co.
Moore & White Co.
Valley Iron Works

SCREENS (Perforated Metal)
Harrington & King Perforating Co.
Charles Mundt & Sons

SCREEN PLATE
Hendrick Mfg. Co.
Union Screen Plate Co.

SEALING TAPE (Gummed)
Paper Manufacturers, Inc.

SEPARATORS (Centrifugal)
Bird Machine Company
Paper Manufacturers, Inc.

SHAFTS (Forged)
Kropp Forge Co.

SHEAVES
Montague Machine Co.

SHOWER PIPES
Bird Machine Company
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
Smith & Winchester Mfg. Co.

SHREDDERS (Pulp and Paper)
Carthage Machine Co.
E. D. Jones & Sons Co.
Taylor Stiles & Co.

SILICATE OF SODA
American Cyanamid & Chemical Corp.

SIZING
National Oil Products

SIZING PROCESS
Bennett, Inc.
National Oil Products Co.
Ross Engrg. Corp., J. O.

SLIME REMOVER
Magnus Chemical Co.

SLITTERS AND REWINDERS
Beloit Iron Works
Cameron Machine Co.
Dietz Machine Works
Hamblet Machine CO
Langston Co., Samuel M.
Moore & White Co.
Pusey & Jones Corp.
Smith & Winchester Mfg. Co.
Waldron Corporation, John.

SODA ASH
American Cyanamid & Chemical Corp.
Diamond Alkali Company
Mathieson Alkali Works, Inc.
Paper Makers Chemical Corp.
Pennsylvania Salt Mfg. Co.
Solvay Sales Corp.

SOAP POWDER
Magnus Chemical Co.
Paper Makers Chemical Corp.

SOLVENT SIZING
Beloit Iron Works

SORTING TABLES
Moore & White Co.

SPECIAL MACHINERY
Carthage Machine Co.
Farrel-Birmingham Co.
Hamblet Machine Co.
Hudson Sharp Machine Co.
Montague Machine Co.
Paper Converting Machine Co., Inc.
John Waldron Corp.

SPEED CHANGES (Variable)
Moore & White Co.

SPEED REDUCERS
Beloit Iron Works
De Laval Steam Turbine Co.
Farrel-Birmingham Co.
Link-Belt Co.
Pusey and Jones Corp.

SPIRAL BEVEL GEARS DRIVE STANDS
Beloit Iron Works
Moore & White Co.
Pusey and Jones Corp.

SPROCKETS
Chain Belt Co.

STAIR and FLOOR TILES—(Non-Slip)
Carborundum Co.
Norton Company

STAIR TREADS
Carborundum Co.
Norton Company

STARCH
American Cyanamid & Chemical Corp.
Clinton Co.
Corn Products Refining Co.

STEAM SPECIALTIES
Crane Company

STEEL BELT LACING
Flexible Steel Lacing Co.

STOCK CUTTERS
Perkins & Sons, Inc., B. F.

STEEL (Electric Furnace)
Timken Roller Bearing Co.

STEEL (Open Hearth)
Timken Roller Bearing Co.

STEEL (Stainless)
Illinois Steel Co.
Jones & Sons Co., E. D.

STEEL PLATE CONSTRUCTION
Hendrick Mfg. Co.
Link Belt Co.
Ross Engrg. Corp., J. O.

STOCK REGULATORS
Merritt Engineering & Sales Corp., The
Trimbey Machine Co.

STOKERS
Frederick Iron and Steel Co.

STRAW MAKING MACHINERY
Samuel H. Langston Co.

STUFF CHESTS
Hauser Stander Tank Co.
Jones & Sons Co., E. D.
Kalamazoo Tank & Silo Co.
Moore & White Co.
Valley Iron Works Co.

STUFF PUMPS
Beloit Iron Works
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frederick Iron and Steel Co.
Moore & White Co.
Morris Machine Works
Pusey and Jones Corp.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

SUCTION BOX COVERS
Moore & White Co.
Pusey and Jones Corp.

SUCTION ROLLS
American Wringer Co.
Beloit Iron Works
Downingtown Manufacturing Co.

SULPHITE (Bleached and Unbleached)
Anderson & Co., J.
Lagerloof Trading Co.
Perkins-Goodwin Co.
Price & Pierce Ltd.

SULPHUR
American Cyanamid & Chemical Corp.
Ashcraft Wilkinson Co.
Texas Gulf Sulphur Co.

SUPER CALENDERS
Beloit Iron Works
Farrell-Birmingham Co.
Lobdell Car Wheel Co.
Moore & White Co.
Norwood Engrg. Co.
Perkins & Son, Inc., B. F.
Smith & Winchester Mfg. Co.
Textile Finishing Mchy. Co.

TABLE ROLLS
American Wringer Co.
Beloit Iron Works
Goodrich Rubber Co., B. F.
Pusey and Jones Corp.

TACHOMETERS
The Bristol Co.
Westinghouse Electric & Mfg. Co.

TANKS
Hauser Stander Tank Co.
Hendrick Mfg. Co.
International Nickel Co.
Kalamazoo Tank & Silo Co.
The Manhattan Rubber Mfg. Co.
Pusey & Jones Corp.
J. O. Ross Engrg. Corp.

TEAR TESTERS
Testing Machines, Inc.
Thwing Instrument Co.

TEMPERATURE RECORDERS
The Bristol Co.
Taylor Instrument Co.
Testing Machines, Inc.
Thwing Instrument Co.
Westinghouse Electric & Mfg. Co.

TENSILE TESTERS
Perkins & Sons, Inc., B. F.
Testing Machines, Inc.
Thwing Instrument Co .

TESTERS (Board)
Cady & Co., E. J.

TESTERS (Bursting Strength)
Testing Machines, Inc.
Perkins & Son, Inc., B. F.

TESTERS (Smoothness)
W. & L. E. Gurley

TESTERS (Stiffness)
W. & L. E. Gurley

TESTING LABORATORY
E. I. DuPont De Nemours & Co., Inc.

TEXROPE DRIVES
Allis-Chalmers Mfg. Co.

THICKENERS
Bird Machine Company

THERMOMETERS
The Bristol Co.
Taylor Instrument Co.
Testing Machines, Inc.
International Nickel Co.
Pusey & Jones Corp.

TITANIUM PIMENT
Titanium Pigment Co.
R. T. Vanderbilt Co.

TIE RODS
International Nickel Co.

TOILET FOLDING MACHINES
Hudson Sharp Machine Co.
Paper Converting Machine Co., Inc.

TOILET WINDERS
Cameron Machine Co.
Dietz Machine Works

TOWEL FOLDING MACHINES
Paper Converting Machine Co., Inc.
Waldron Corp., John

TOWEL INTERFOLDING MACHINES
Dietz Machine Works

TOWEL WINDER
Cameron Machine Co.
Hudson Sharp Machine Co.
Waldron Corp., John

TRANSMISSION MACHINERY
Beloit Iron Works
Chain Belt Co.
De Laval Steam Turbine Co.
Farrel-Birmingham Co.
Link Belt Co.
Timken Roller-Bearing Co.

TREADS (Non-Slip)
Carborundum Co.
Norton Company

TRAPS (Steam)
Crane Company

TRUCKS
Moore & White Co.

TUBES (Paper)
Climax Tube Co.
Elixman Paper Core Co.

TUBING (Seamless Steel)
Timken Roller Bearing Co.

TUBS (Beater)
Hauser Stander Tank Co.

TUBS (Wood)
De Laval Steam Turbine Co.
Hauser Stander Tank Co.

TURBINES (Hydraulic)
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Sturtevant Co., B. F.

TURBINES (Water)
De Laval Steam Turbine Co.
Sturtevant Co., B. F.

TURBO-GENERATORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Co.

V-BELTS
Allis-Chalmers Mfg. Co.
B. F. Goodrich Rubber Co.
Goodyear Tire & Rubber Co.
United States Rubber Co.

VACUUM CONTROL
Appleton Machine Co.
Broughton Systems

VALVES
Carthage Machine Co.
Crane Company
International Nickel Co.
E. D. Jones & Sons Co.
Ross Engineering Corp.
Trimby Machine Works
Walworth Co.

VALVES (Strainer)
Bird Machine Company

VENTILATING SYSTEMS
Propellair, Inc.
J. O. Ross Engrg. Corp.

WASHERS
Carthage Machine Co.
E. D. Jones & Sons Co.
Moore & White Co.
Oliver United Filters Inc.

WASHERS (Stock)
Bird Machine Company

WAXING MACHINERY
Potdevin Machine Co.
Waldron, John, Corp.

WAX SIZE
American Cyanamid & Chemical Corp.
Bennett, Inc.
National Oil Products Co.
Paper Makers Chemical Corp.

WET MACHINES
Carthage Machine Co.
Montague Machine Co.
Pusey Jones Corp.
Smith & Winchester Mfg. Co.
Valley Iron Works

WINDERS
Beloit Iron Works
Cameron Machine Co.
Langston Co., Samuel M.
Moore & White Co.
Pusey & Jones Corp.
Shartle Bros. Machine Co.
Smith & Winchester Mfg. Co.
John Waldron Corp.

WIRES
Appleton Wire Works
International Wire Works

WIRE CLEANERS
Magnus Chemical Co.

WIRE CLOTH
International Nickel Co.

WIRE GUIDES
Moore & White Co.
John Waldron Corp.

WIRE GUIDE ROLLS
American Wringer Co.
Goodrich Rubber Co., B. F.

WIRE STRETCH ROLLS
American Wringer Co.
Valley Iron Works Co.

WOOD SPLITTERS
Carthage Machine Co.
Moore & White Co.

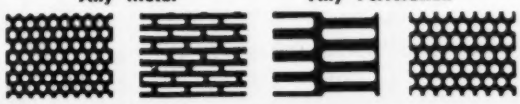
WORMED CUTTERS
American Wringer Co.

WRENCHES
Walworth Co.

ZINC OXIDE PIGMENT
New Jersey Zinc Co.

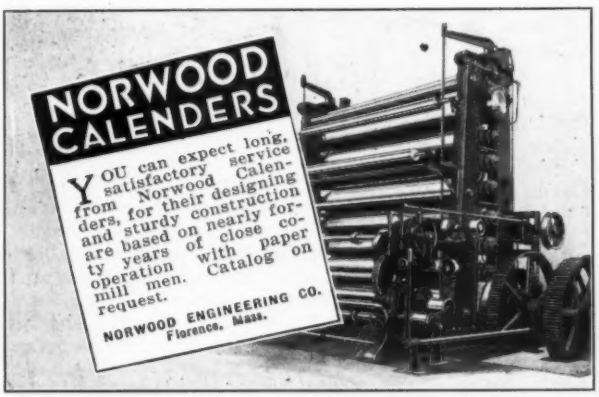
ZINC SULPHIDE PRODUCT
New Jersey Zinc Co.

Pulp and Paper Mill Screens
Of Stainless Steel—Copper—Bronze—Monel—Chemical Resisting Alloys
Perforations that are accurate in size
Any Metal Any Perforation



The Harrington & King Perforating Co.
5652 Fillmore St., Chicago, Ill.... 114 Liberty St., New York, N.Y.

DAYTON GLOBE IRON WORKS, INC.
Dayton, Ohio
BEATER REPAIRS **MORTISE GEARS**
DUMP VALVES **GATE HOISTS**


NORWOOD CALENDERS
YOU can expect long, satisfactory service from Norwood Calenders, for their designing and sturdy construction are based on nearly forty years of close cooperation with paper mill men. Catalog on request.
NORWOOD ENGINEERING CO.
Florence, Mass.

INTERNATIONAL WIRE WORKS
Fourdrinier Wires
MENASHA, WISCONSIN

WINDERS AND REWINDERS
SAMUEL M. LANGSTON COMPANY
CAMDEN, NEW JERSEY

ALPHABETICAL INDEX TO ADVERTISERS

Allis-Chalmers Co. ..... —
Amer. Cyanamid & Chem. Corp. 38
American Wringer Co., Inc..... 59
Andersen & Co., J..... 55
Appleton Machine Co. ..... —
Appleton Wire Works, Inc..... 59
Appleton Woolen Mills 59
Ashcraft Wilkinson Co. ..... —
Atkins & Co., E. C..... —

Bagley & Sewall Mfg. Co..... —
Bahr Bros. Mfg. Co..... —
Bausch & Lomb Optical Co..... —
Beloit Iron Works 3
Bennett, Inc. 7
Bird Machine Co. ..... —
Bowsher & Co., N. P..... —
Bristol Company ..... —
Broughton Systems ..... —
Bulkley, Dunton & Co..... 8

Cady & Co., E. J. 7
Cambridge Instrument Co. ..... —
Cameron Machine Co. 57
Campbell & Co., John..... —
Canadian Elixman Co....Front Cover
Carborundum Co. ..... —
Carthage Machine Co. ..... —
Casein Mfg. Co. of America... —
Castle & Overton, Inc..... —
Chain Belt Co. ..... —
Chemipulp Process, Inc. ..... —
Chromium Corp. of America... —
Climax Tube Co. ..... —
Clinton Company ..... —
Corn Products Refining Co..... —
Crane Company ..... —

Dayton Globe Iron Works..... 63
De Laval Steam Turb. Co..... 59
DeZurik Shower Co. ..... —
Diamond Alkali Works ..... —
Dietz Machine Works ..... —
Dilts Machine Works, Inc..... 25
Downington Mfg. Co. 17
Draper Bros. Co. 4
Du Pont de Nemours & Co..... —

Electro Bleaching Gas Co..... 31
Elixman Paper Core Co..Front Cover
English China Clay Sales Corp. 55

Farrel-Birmingham Co., Inc. ... 4
Ferguson Co., Hardy S..... 57
Fibre Making Processes, Inc.... 9
Fifth Avenue Bldg., The..... 55
Fitchburg Duck Mills ..... —
Flexible Steel Lacing Co..... 4
Frederick Iron & Steel Co..... —

Geigy Company, Inc..... —
General Chemical Co. 57
General Dyestuff Corp. ..... —
General Electric Co. ..... —
Goodrich Rubber Co., The B. F. —
Goodyear Tire & Rubber Co.... —
Gulf Refining Co. ..... —
Gurley, W. & L. E..... —

Hamblet Machine Co. 6
Hammermill Paper Co. ..... —
Hardy, George F. 57
Harrington & King Perforating Co. 63
Harris-Seybold-Potter ..... —
Hauser-Stander Tank Co. ..... —
Heller & Merz Corp. 6
Hendrick Mfg. Co. 59
Heveatex Corp. ..... —
Hospitals Trust, Ltd. 65
Hudson Sharp Machine Co..... —
Huyck & Sons, F. C..... —

Illinois Steel Co. ..... —
International Nickel Co. 5
International Paper Co. ..... —
International Pulp Co. 59
International Wire Works 63

Jones & Sons Co., E. D..... —

Kalamazoo Tank & Silo Co..... —
Knox Woolen Co. 8
Kropp Forge Co. ..... —

Lagerloef Trading Co. ..... —
Langston Co., Samuel M..... 63
Link-Belt Co. ..... —
Lobdell Car Wheel Co..... —
Lockport Felt Co. ..... —
Lockwood's Directory ..... —

Magnus Chemical Co. ..... —
Manhattan Rubber Co. ..... —
Mathieson Alkali Works ..... —
Meincke & Son, Inc..... —
Merritt Engineering & Sales Co. —
Mine & Smelter Supply Co..... —
Montague Machine Co. ..... —
Moore & White Co..... 59
Morris Machine Works ..... —
Mundt & Sons, Charles..... 57

National Aniline & Chemical Co. —
National Oil Products Co..... —
New Jersey Zinc Co..... —
New York Color & Chemical Co. —
Noble & Wood Machine Co..... —
Norton Co. ..... —
Norwood Engineering Co. 63

Ohio Cultivator Co. ..... —
Orr Felt & Blanket Co..... —

Paper Converting Machine Co... —
Paper Makers Chemical Corp... —
Paper Makers Importing Co..... —
Paper Manufacturers Co., Inc... —
Pennsylvania Salt Mfg. Co..... —
Perkins & Sons, Inc., B. F. 2
Perkins Goodwin Co. ..... —
Philadelphia Felt Co. ..... —
Port Huron Xylite Co..... —
Potdevin Machine Co 7
Price & Pierce, Ltd..... 8
Processed Lumber Co. ..... —
Propellair, Inc. ..... —
Pulp & Paper Trading Co..... —
Pusey & Jones Corp.:..... —

Rhoads Sons, J. E..... —
Ross Engrg. Corp., J. O..... —

Sabin Robbins Paper Co..... —
Seybold Machine Co. ..... —
Shartle Bros. Machine Co..... —
Shuler & Benninghofen..... —
S.K.F. Industries ..... —
Smith & Winchester Mfg. Co.... —
Socony-Vacuum Corp..19, 20, 21 & 22
Solvay Sales Corp. ..... —
Sturtevant Co., B. F..... 6

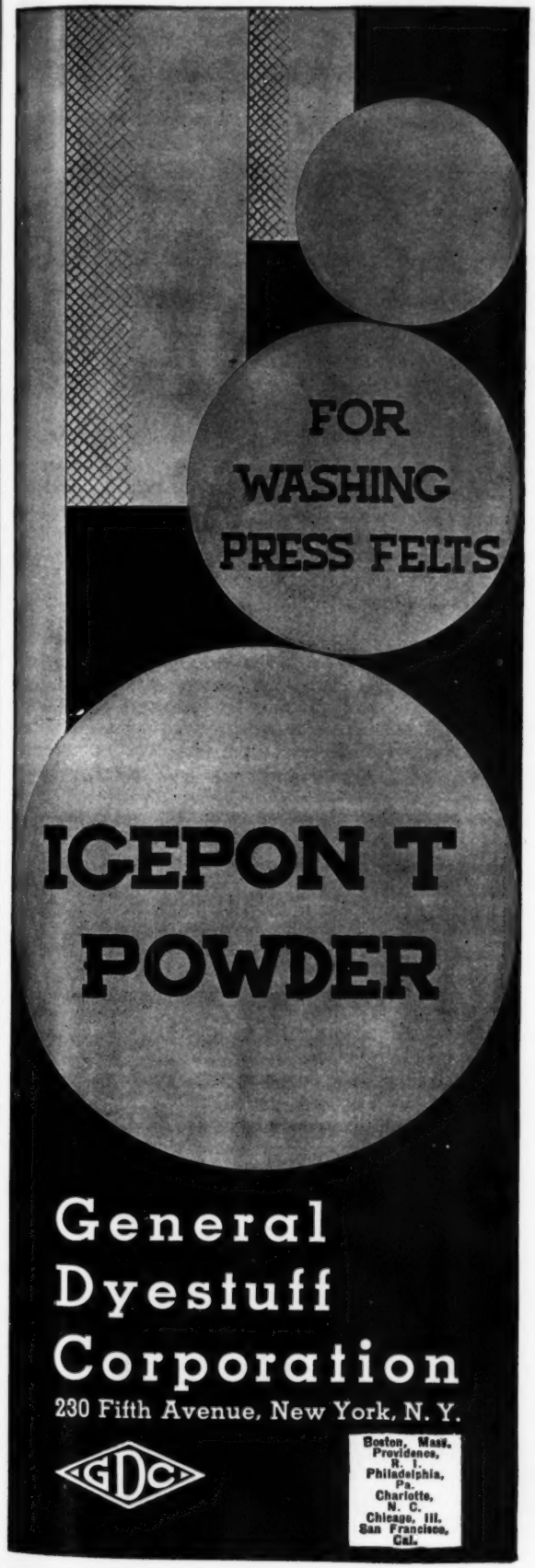
Taylor Instrument Co. ..... —
Taylor, Stiles & Co..... —
Testing Machines, Inc. ..... —
Texas Gulf Sulphur Co..... 8
Textile Finishing Machinery Co. —
Thwing Instrument Co. 11
Ticonderoga Machine Works... —
Timken Roller Bearing Co.Back Cover
Titanium Pigment Co., Inc..... —
Trimbey Machine Works ..... —
Turner, Halsey Co. ..... —

Union Screen Plate Co..... 57
United Color & Pigment Co..... —
United States Rubber Co..... —

Valley Iron Works Co.....35
Vanderbilt Co., R. T..... 12

Waldron Corp., John 8
Walworth Company ..... —
Waterbury Felt Co. ..... —
West Virginia Pulp & Paper Co. 4
Weyerhaeuser Timber Co. ..... —
Williams & Co., C. K..... —

See Pages 60, 61 62 and 63 Classified List of Products and Their Manufacturers.



PAPER TRADE JOURNAL
ESTABLISHED 1872
SIXTY-THIRD YEAR
THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD
Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.
GEO. S. MACDONALD, President. J. BANNINGA, Sec.-Treas.
Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 15 West 47th Street, New York
Chicago Office: 123 West Madison St.

TABLE OF CONTENTS

Canada Ready to Act in Newsprint Crisis 16
A. R. Graustein Addresses Cabinet 16
Export Newsprint Board 16
B. C. Paper Box Companies Merge 16
M. H. Morley With Thames River Mills 16
Activities of Wisconsin Manufacturers 17
Riverside Paper Mill Active 17
Sulphite and Sulphate Waste Disposal 17
Boston Paper Demand Fairly Active 18
New England Paper Merchants Meet 18
Discuss Higher Freight Rates on Paper 18
Royal Card Opens Chicago Office 18
Philadelphia Market Conditions Improve 19
Franklin Memorial Exhibit Planned 19
Paper and Cordage Activities 19
Weekly Production Ratio Report 19
Chicago Market Conditions Irregular 20
Paper Salesmen Discuss Contracts 20
Paper Men at Hearing on Proposed Reciprocal Agreement With Sweden Oppose Changes ... 22
Indianapolis Looks for Improvement 36
File Suits Against Paper Stock Firms 36
Parker Corning Reelected Congressman 36

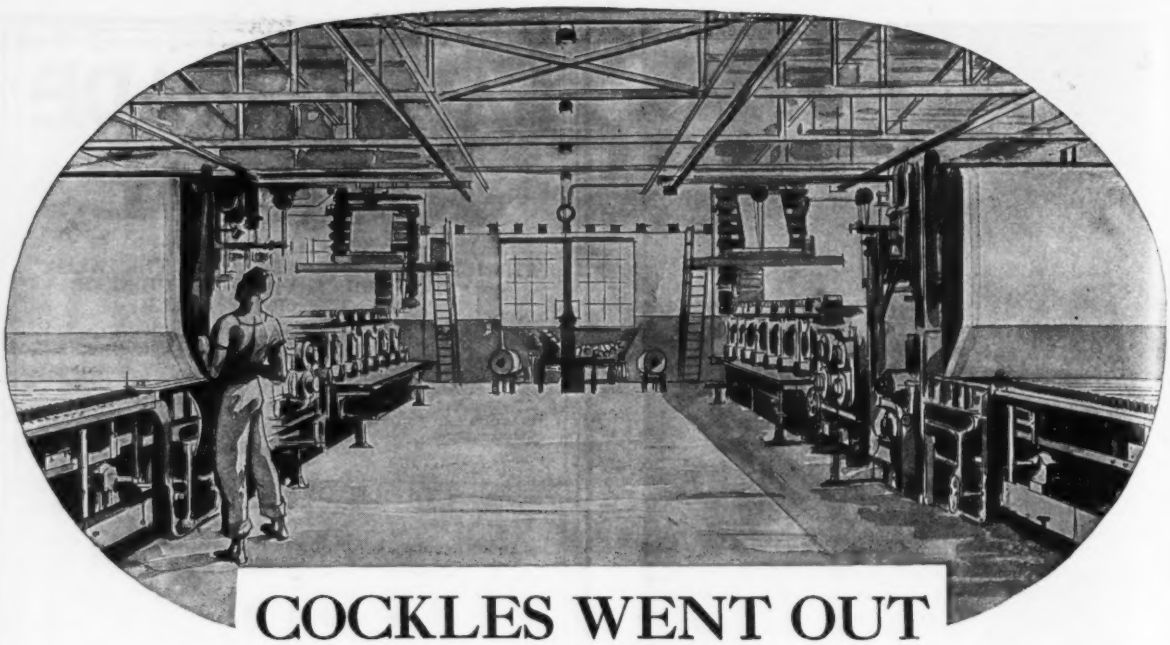
Editorial 38
Mobile Mill to Make White Paper 39
TAPPI to Meet at Middletown 39
Process Engineers' Patent 39
Paper Mill Wire Code Authority 39

Technical Section
Pulpwood Supply of the Pacific Northwest 41
Pulp and Paper Industry Literature Review .. 42
Chemical Control in Paper Manufacture 45
Refining of Paper Stock 59
Imports of Paper and Paper Stock 53
Pulp Strikers Return to Work 54
Charles W. Chabot Dead 54
L. A. Mahrt in Charge of Paper Work 54

New York Market Review 55
Miscellaneous Markets 56
Market Quotations 56

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 60-61



COCKLES WENT OUT *when* S & W CAME IN

★

Read how S & W engineering worked with this mill to overcome all obstacles

A mill producing fine tissue and condenser papers wanted to step way ahead of competition with the *finest* possible sheet more than 100" wide. Requirements: no variations in thickness to occur anywhere the entire length or width; no pinholes; no waste from cockles. They discussed their ideas with South Windham, and S & W engineers went to work.

All told, 3 specially designed machines were installed (the widest Fourdriniers operating in the world on the *finest* tissue and condenser papers), and they met all requirements. With the stock specified, Smith & Winchester's long experience guaranteed the work turned out by these machines *even before installation.*

Plans that call for modernizing present machines or designing new Fourdrinier, Cylinder or Wet machines should be taken up with your consulting engineer *and S & W.* At South Windham all plans are kept confidential and worked out in secrecy. Address: Engineering Department, The Smith & Winchester Manufacturing Company, South Windham, Connecticut.

The CONSULTING ENGINEER *has a Part in the Picture*

"CARRYING THE TORCH" *is the name of a recent booklet prepared especially for executives interested in facts regarding the facilities and work done here at South Windham. A notation on your letterhead will bring your copy.*

★

The SMITH & WINCHESTER *Manufacturing Company*

PLANT AND OFFICES AT 1828 SOUTH WINDHAM, CONNECTICUT

142